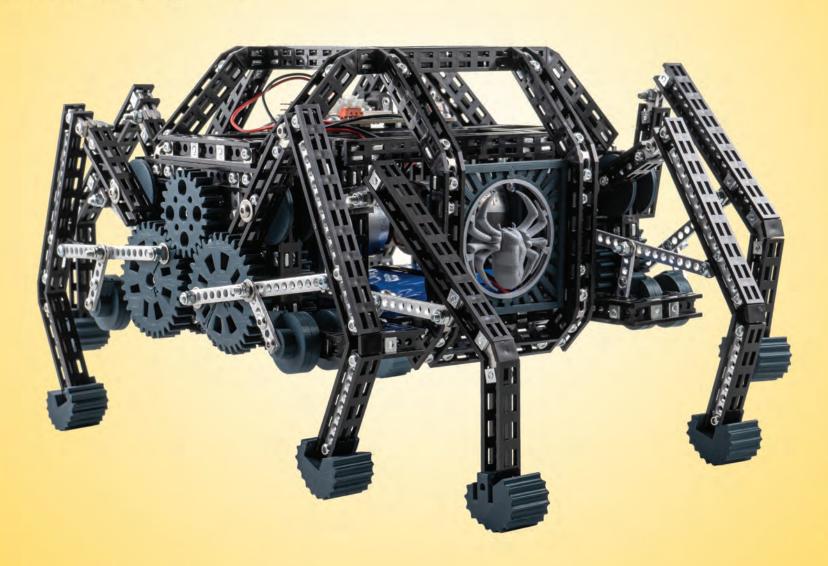
# BLACK SPIDER

Assembly guide





### **STARTING TIPS**

**Inserting nuts (1)** 

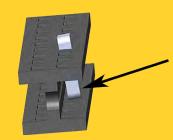
Inserting nuts (2)

**Faulty threads** 

Tightening standoffs

Ruler











It is a good idea to start every step inserting nuts into beams (if the step requires).

Use the back of the screwdriver to push in the nuts.

After entering the first slot, nuts tend to tilt. Use your thumb to push it back straight, and then again use the screwdriver to insert the nut all the way in.

Some of the nuts are missing threads. This is a manufacturing issue and we are working on it. In the mean time, we add few extra nuts. We apologize for the inconvenience.

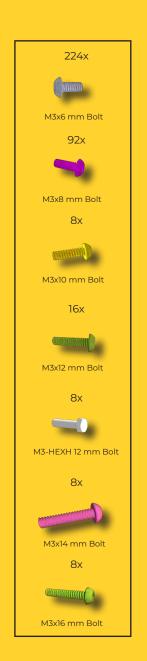
Push Nylon Standoff with your thumb while tightening it with the wrench.

Use Beam/Bolt ruler to determine the length of beams and bolts.

For more tips, please visit the link below:

https://totemmaker.net/blog/totem-mechanics-for-beginners/

### **PART LIST**







16x

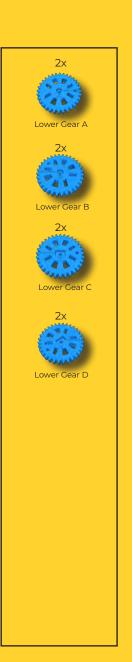
24x

C-Bracket









### **PART LIST**

#### **BEAMS:**



2 cm	4 x
3 cm	4 x
4 cm	4 x
5 cm	24 x
6 cm	18 x
7 cm	6 x
9 cm	16 x
10 cm	2 x
11 cm	2 x
13 cm	2 x
17 cm	4 x

2x



Motor Coupler 6 mm

1x



RoboBoard X4

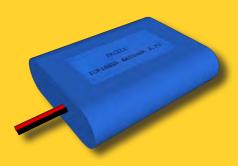


Zip Tie 25 mm



DC Motor 37 mm

1x



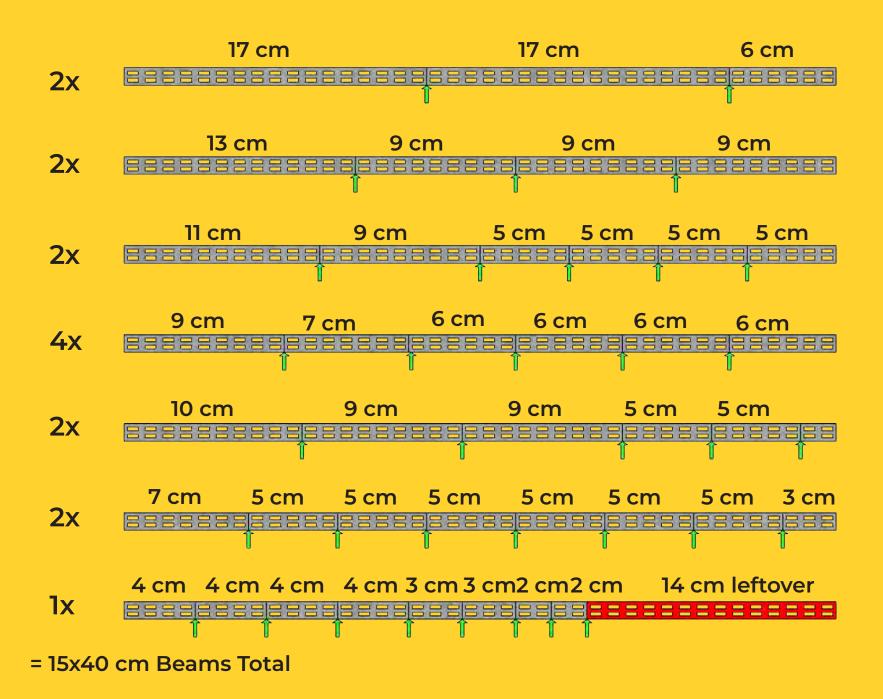
3x18650 Li-ion pack

#### **STRIP BRACKETS:**

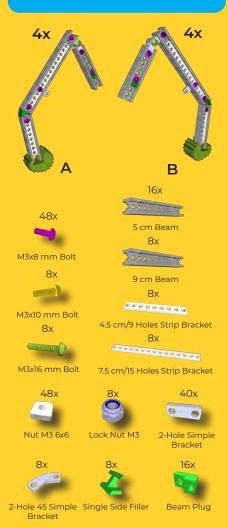


3 cm/6H	8 x
3.5 cm/7H	12 x
4.5 cm/9H	8 x
7.5 cm/15H	8 x
9.5 cm/19H	8 x

#### **Cutting 40 cm Beams**

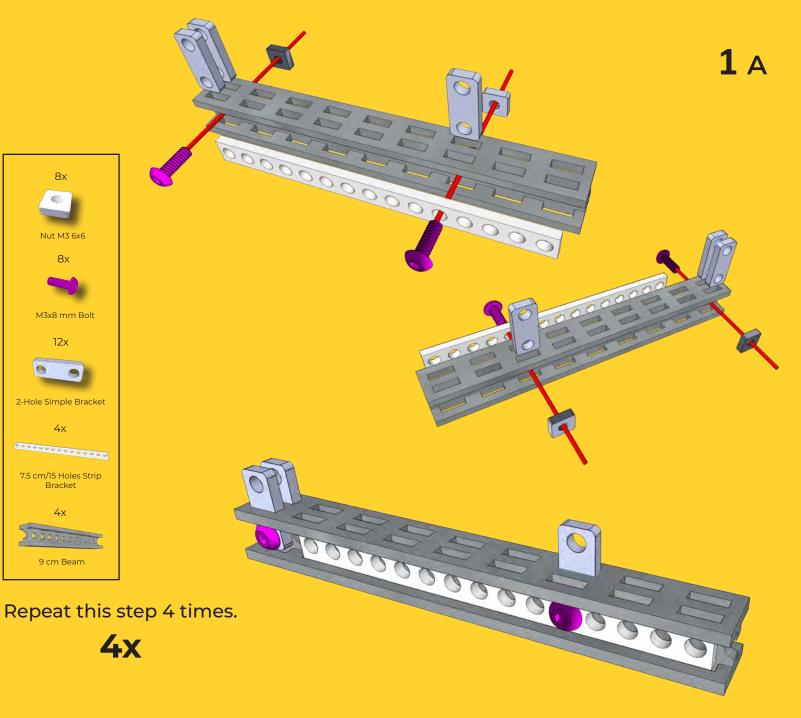


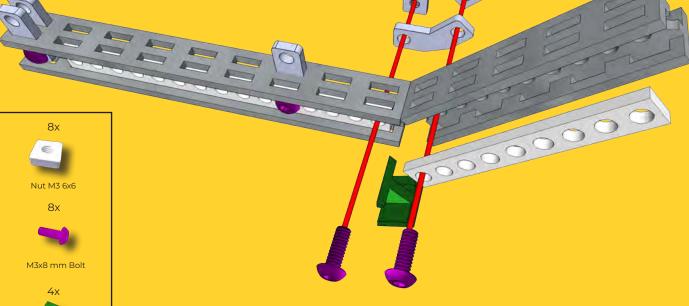
## PART 1

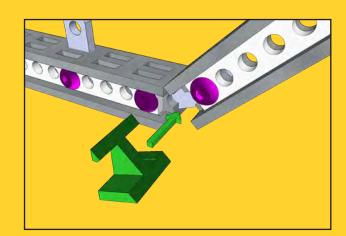


Spider Foot A Spider Foot B









Single Side Filler

4x

2-Hole 45 Simple Bracket

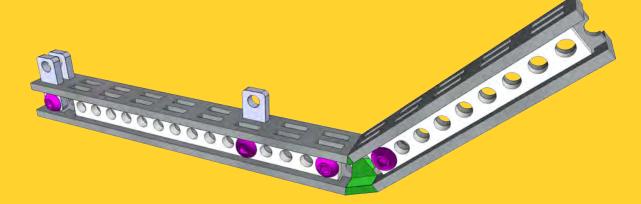
4x

5 cm Beam

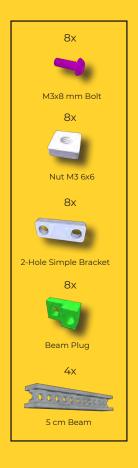
4x

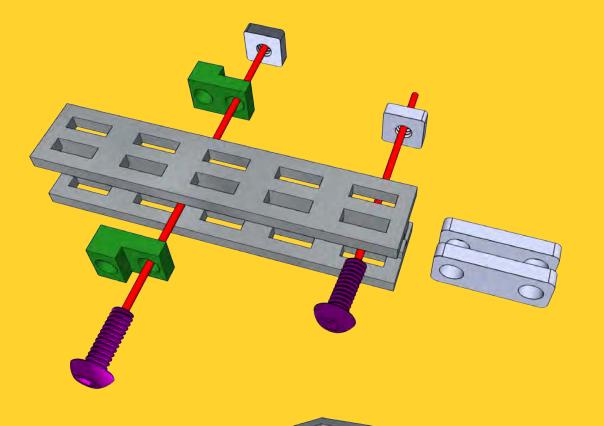
4.5 cm/9 Holes Strip

Bracket



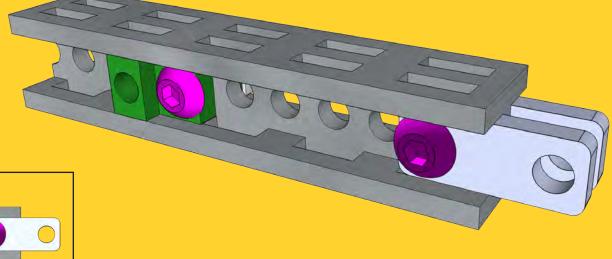
Repeat this step 4 times.

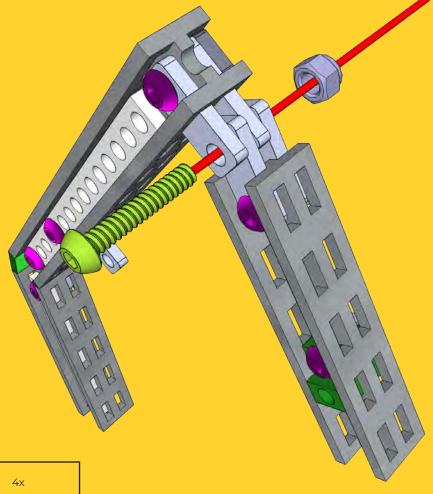




Repeat this step 4 times.

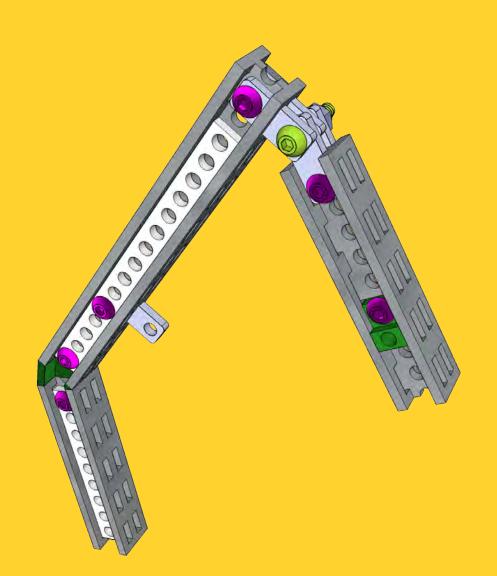
X



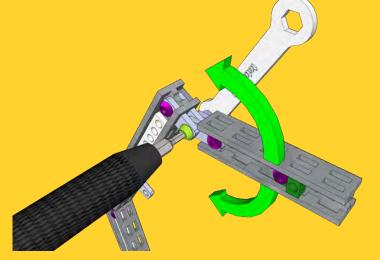


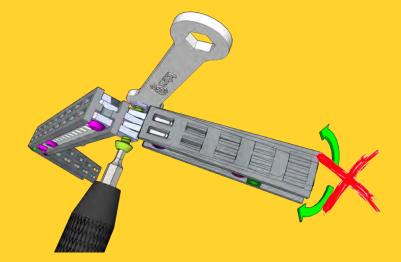


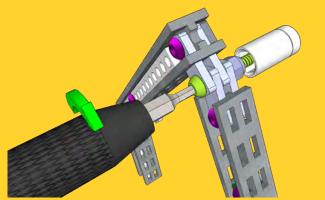
Repeat this step 4 times.











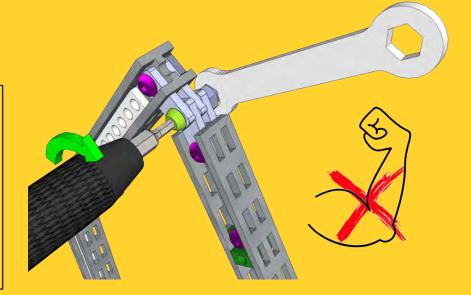
Alternatively use a socket for 5.5 mm HEX heads to hold the lock nuts.

Repeat this step 4 times.

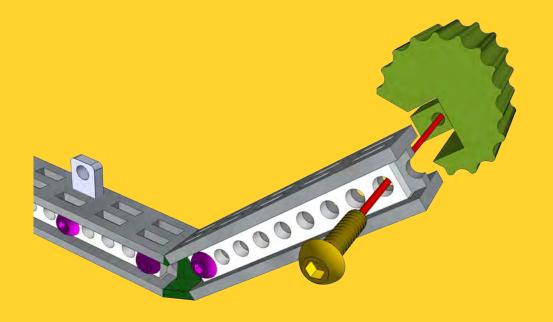
**4**x

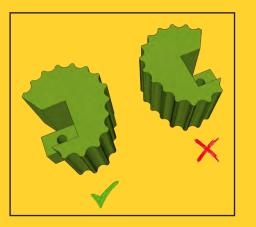
#### Tip for tightening lock nuts:

Here a bolt and a lock nut is used as a hub or bearing in joints between the spider leg parts. They should not be tightened too much, since they must rotate easily. But they should not be wobbly either. Find the tightening that you feel is good.



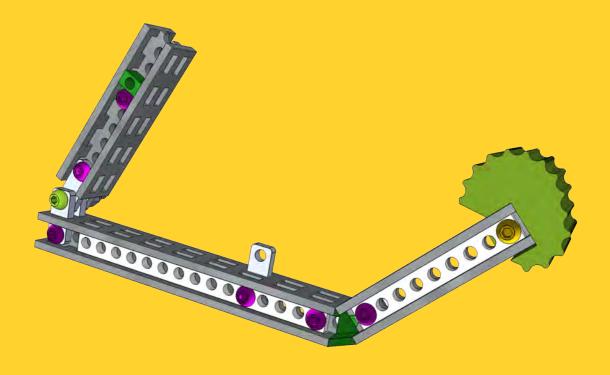




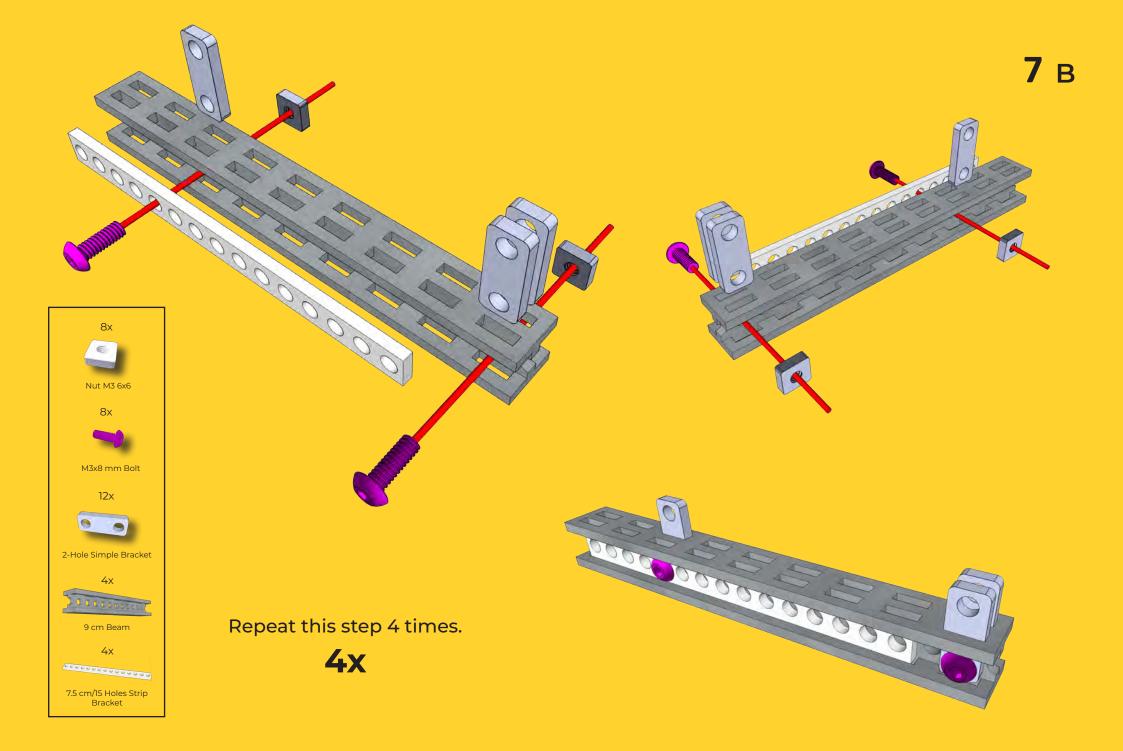


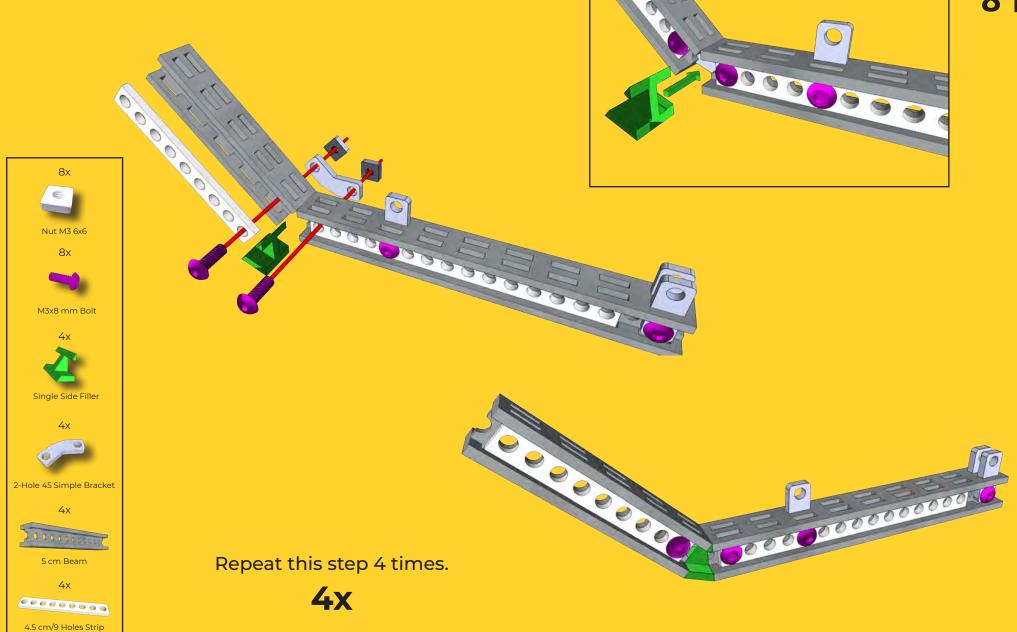
Repeat this step 4 times.



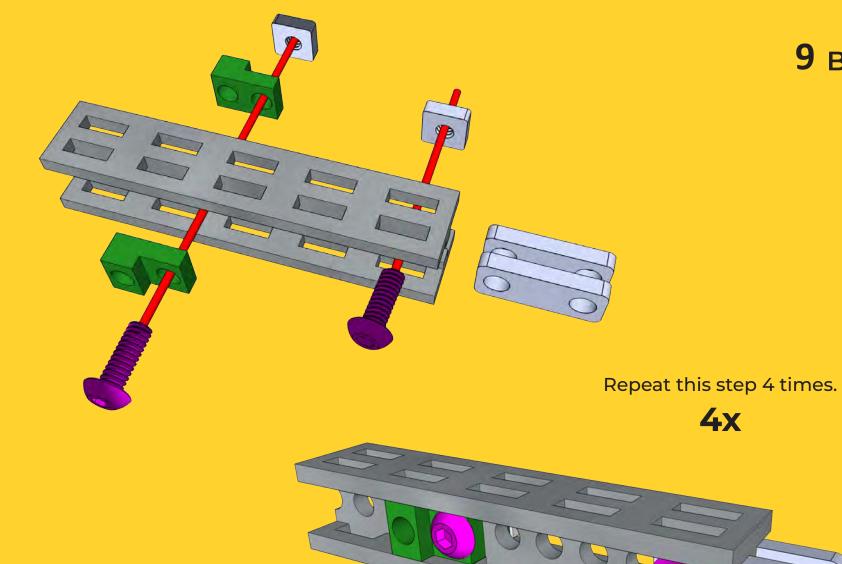


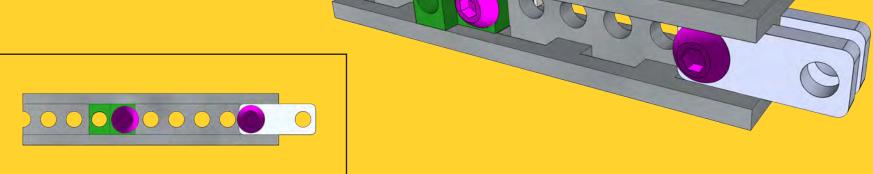


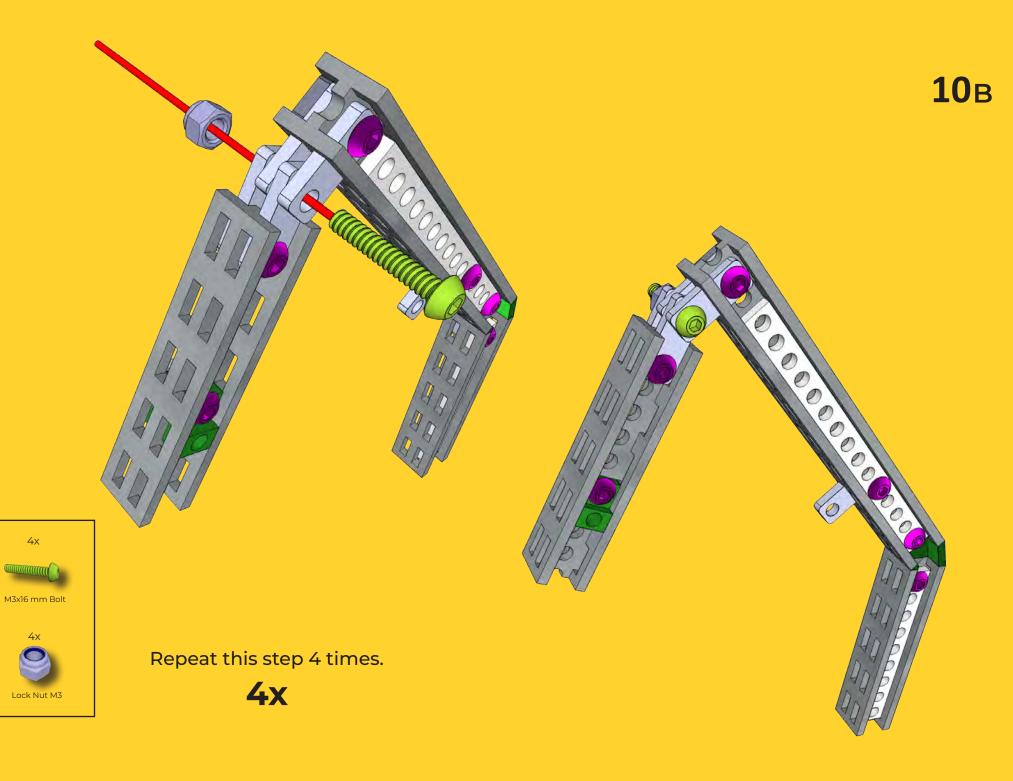


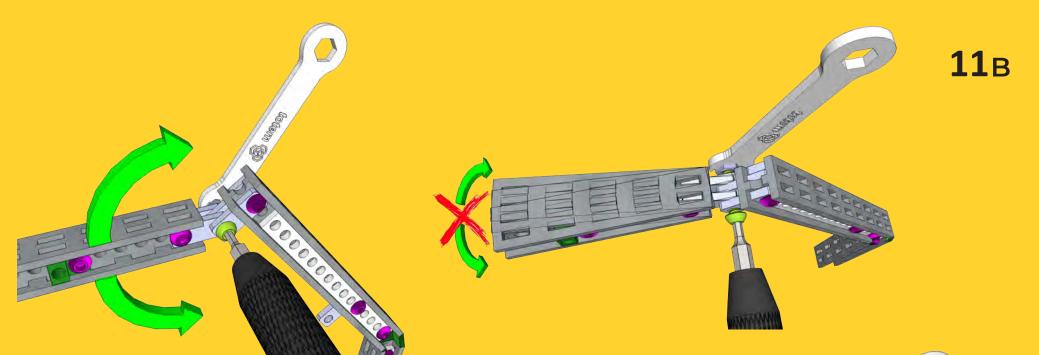










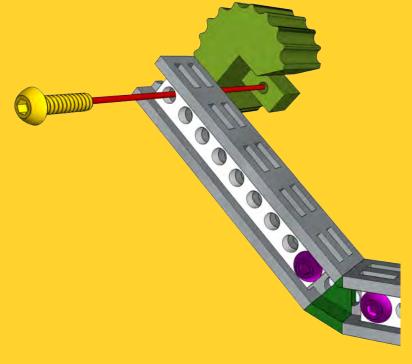


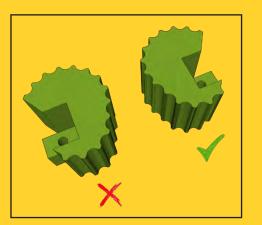
Alternatively use a socket for 5.5 mm HEX heads to hold the lock nuts.

Repeat this step 4 times.

**4**x

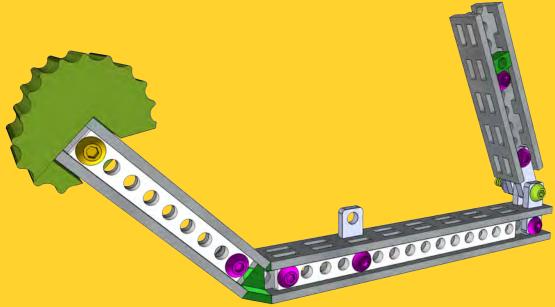
Do not over-tighten the lock nuts.

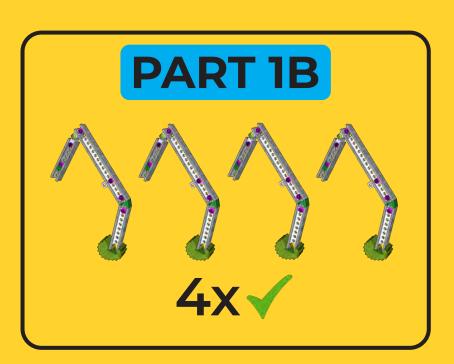




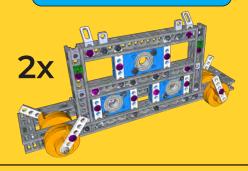
Repeat this step 4 times.







# PART 2



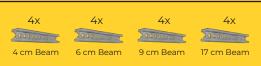


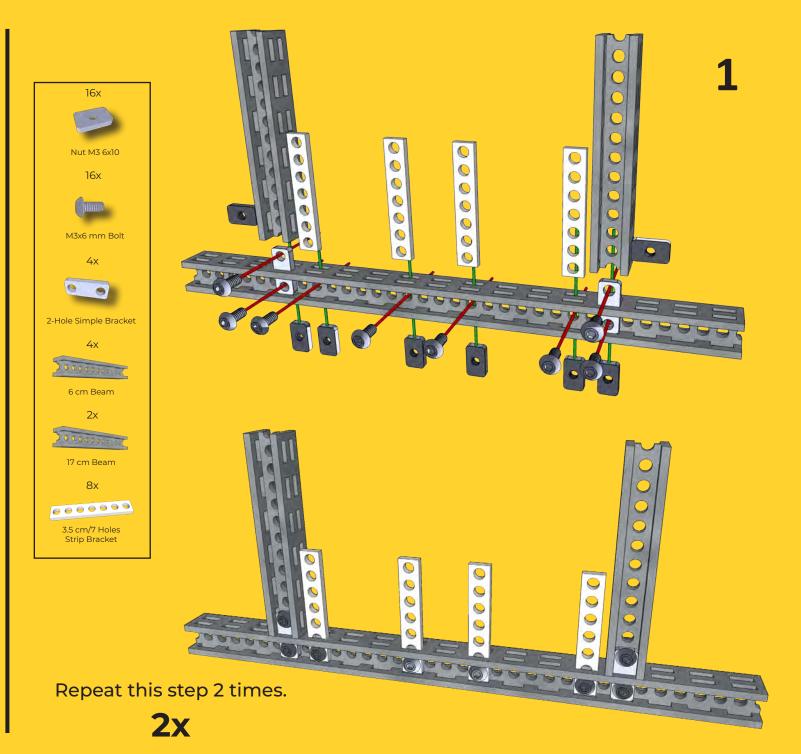






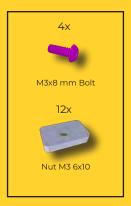




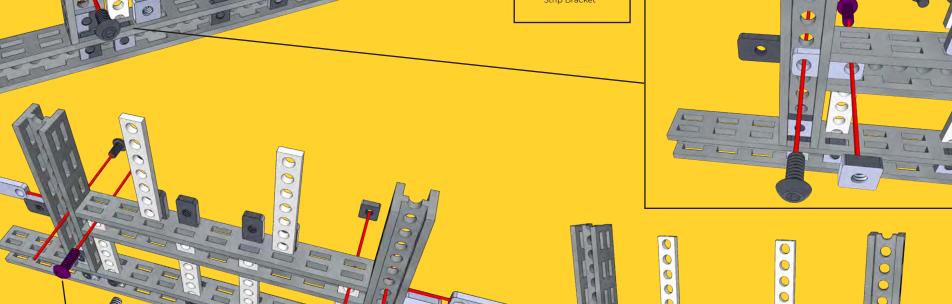




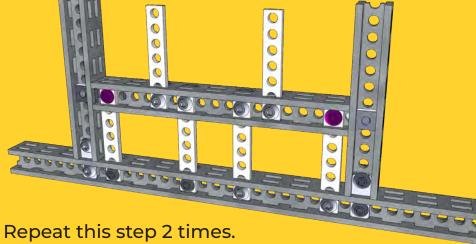


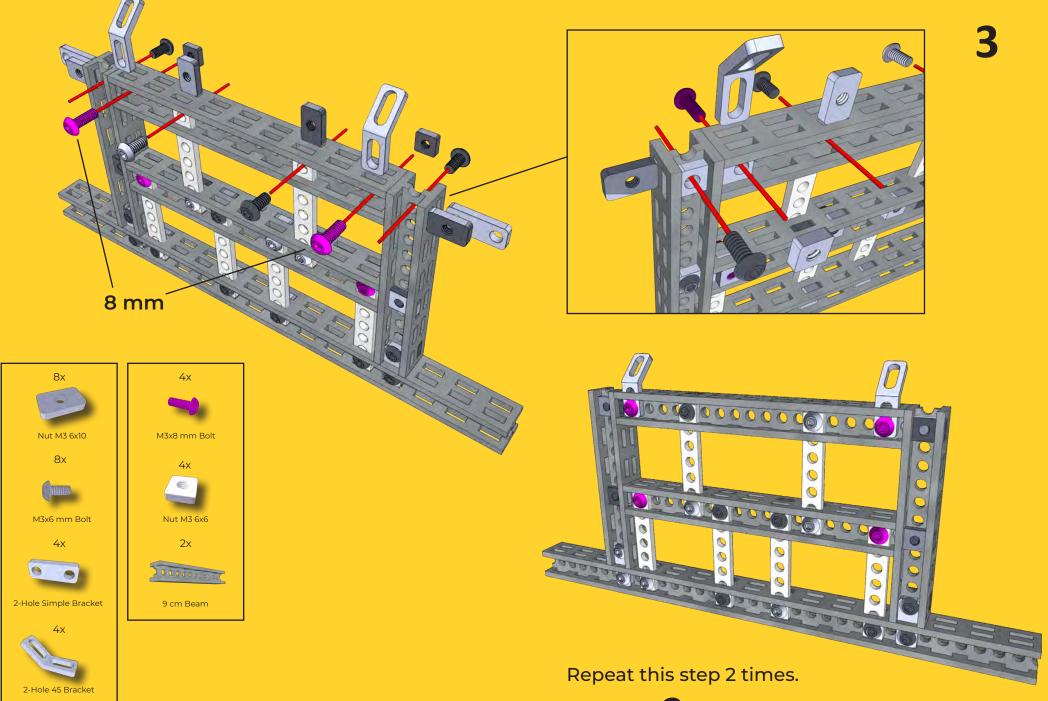


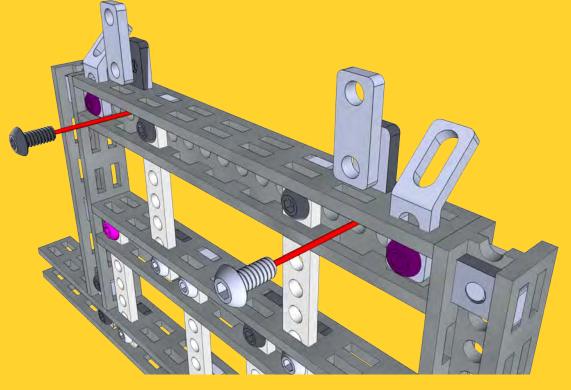




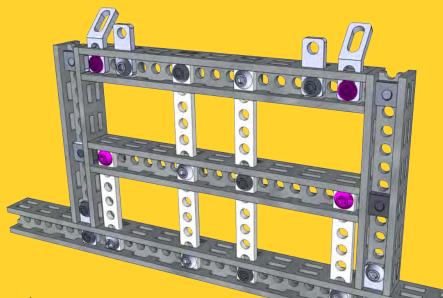
8 mm



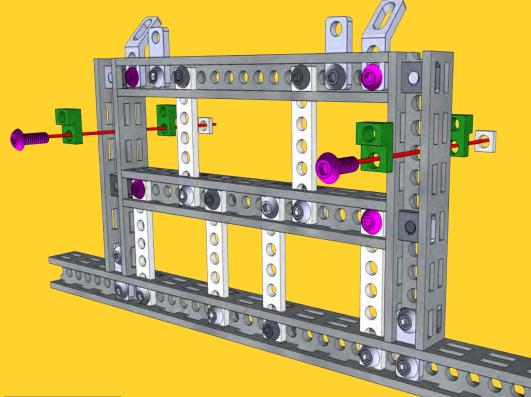


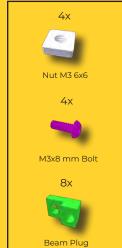






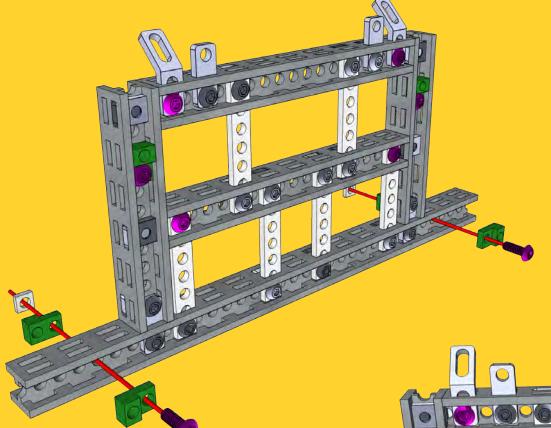
Repeat this step 2 times.

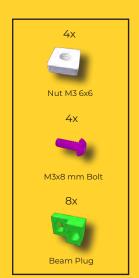




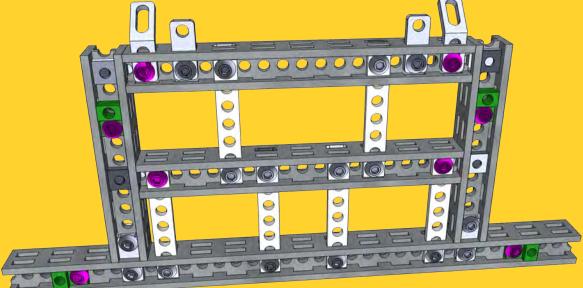
Repeat this step 2 times.



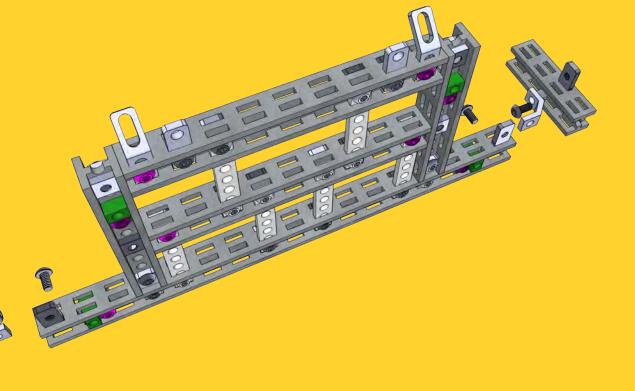




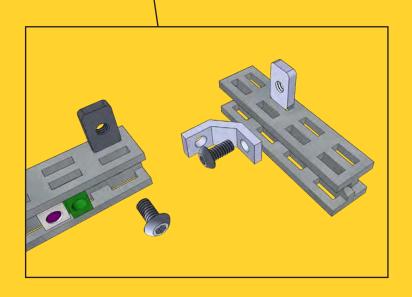
Repeat this step 2 times.

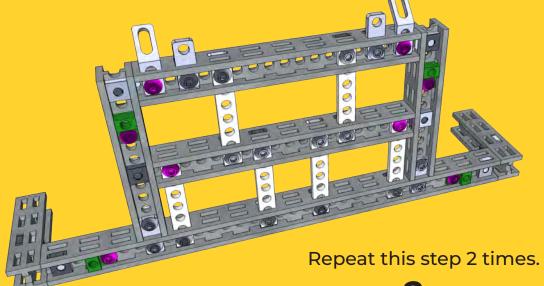


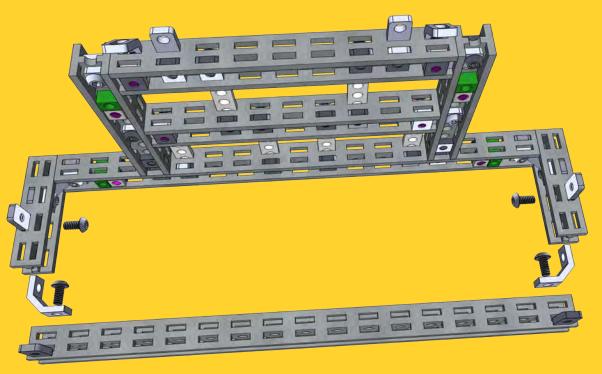






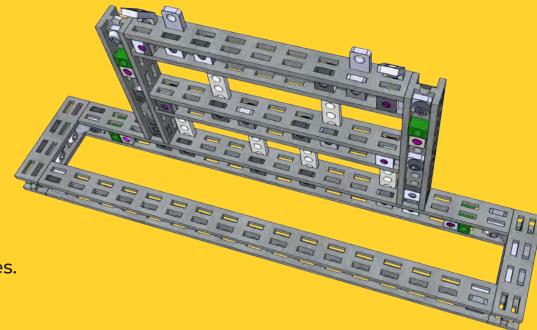




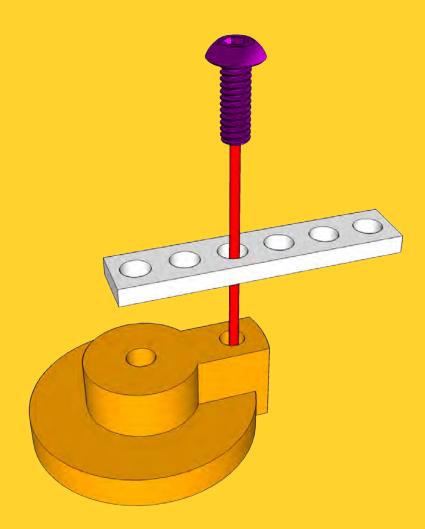




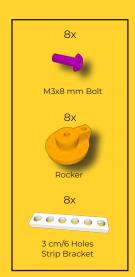
17 cm

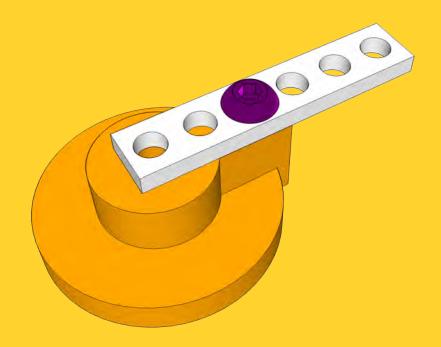


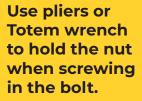
Repeat this step 2 times.

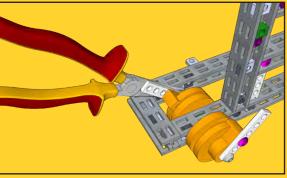


Repeat this step 8 times.



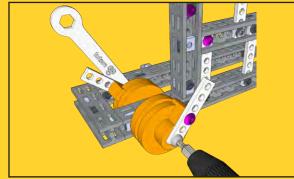




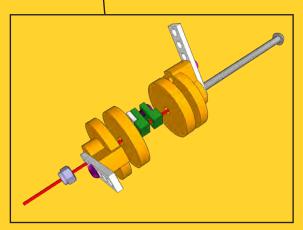


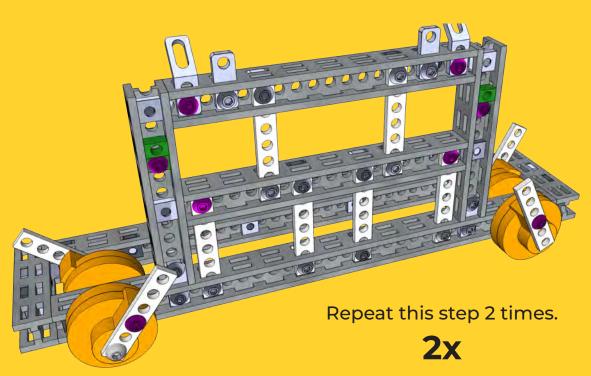
45 mm

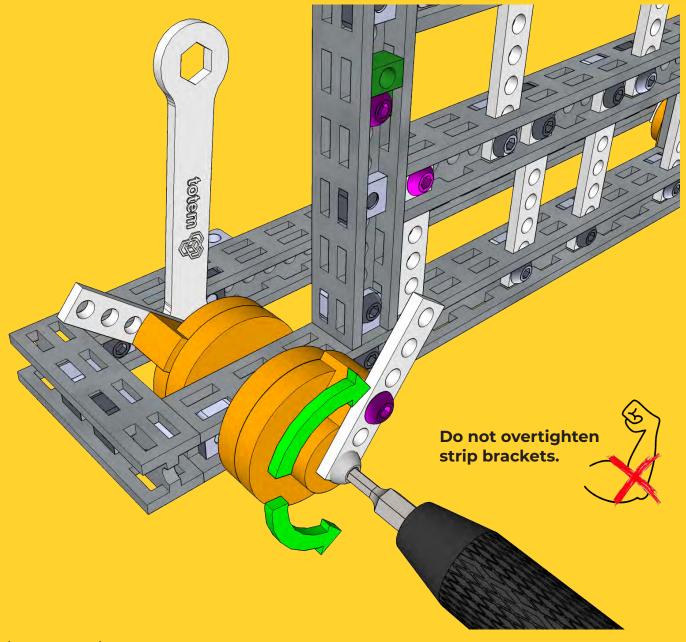
45 mm



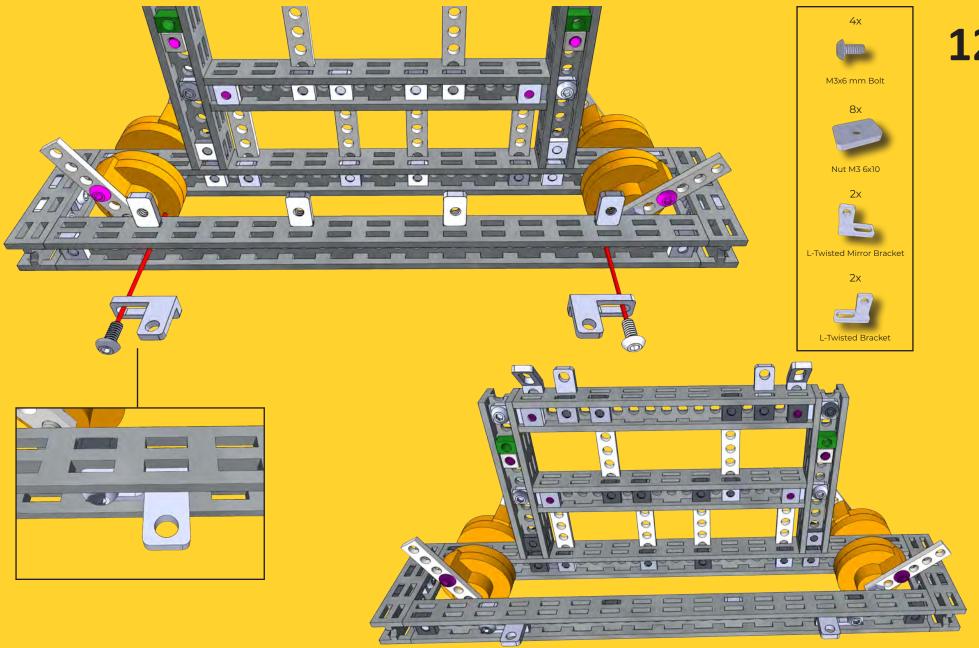




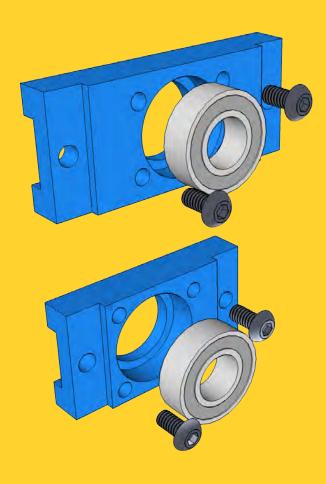




Repeat this step 4 times.

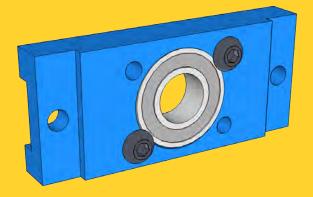


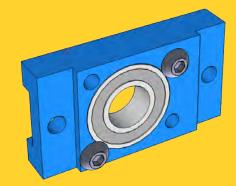
Repeat this step 2 times.



Repeat this step 2 times.

**2**x



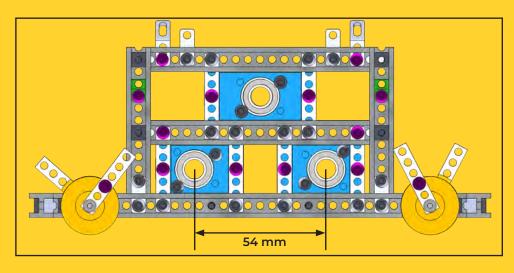


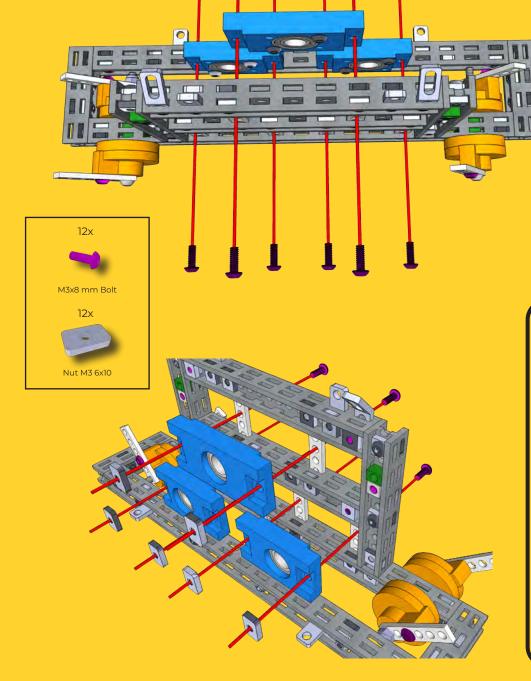
Repeat this step 4 times.

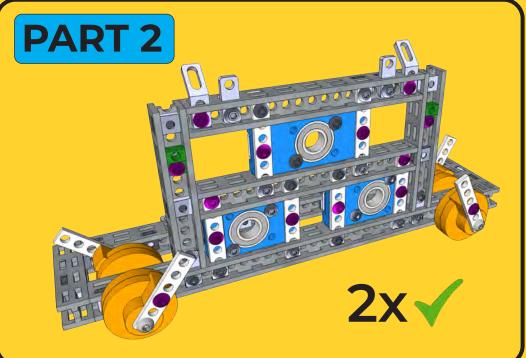
**4**X



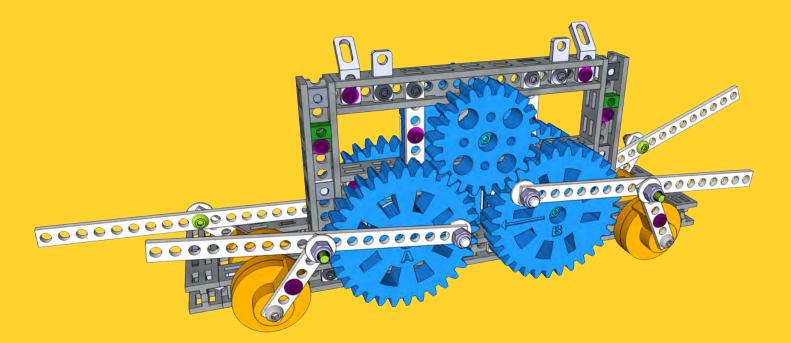








# PART 3



2**x** 

8x



M3x8 mm Bolt

8x



M3x12 mm Bolt



M3x25 mm Bolt

8x



M3-HEXH 12 mm Bolt



Lock Nut M3

16x



Washer 9/0.8mm M3



Metal Nut M3



Motor Coupler 6 mm



Nut M3 6x10

2x









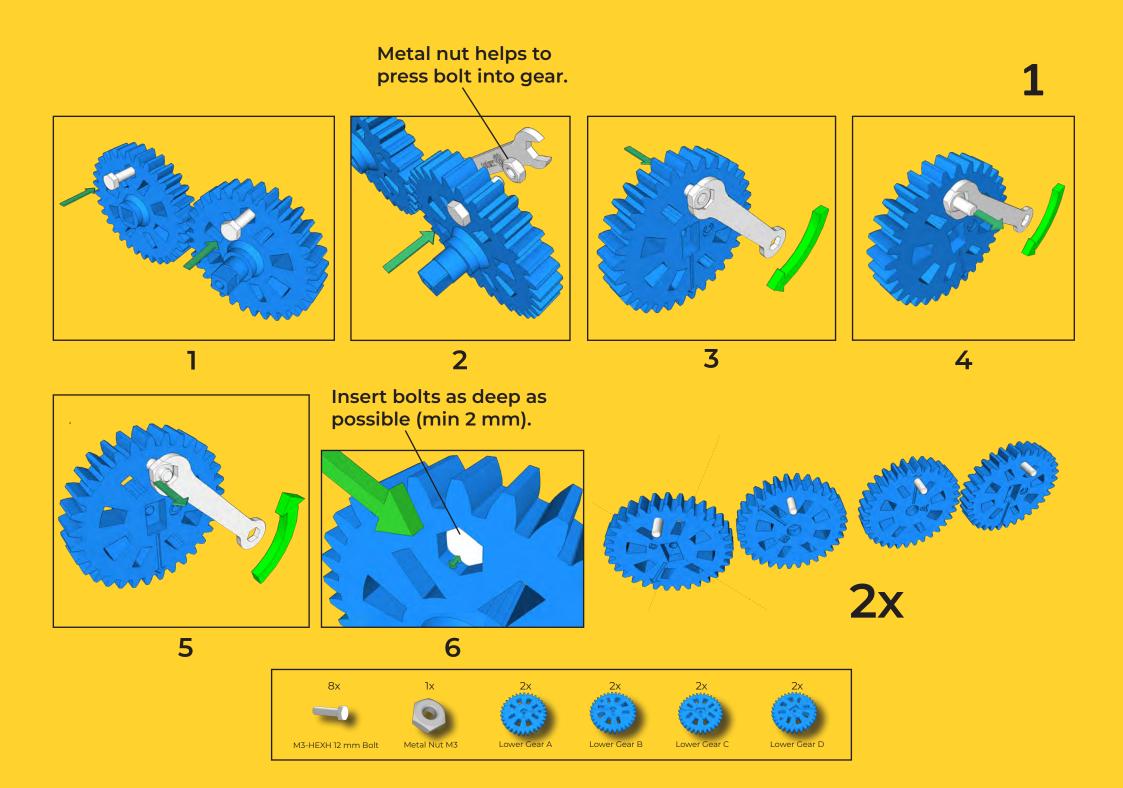




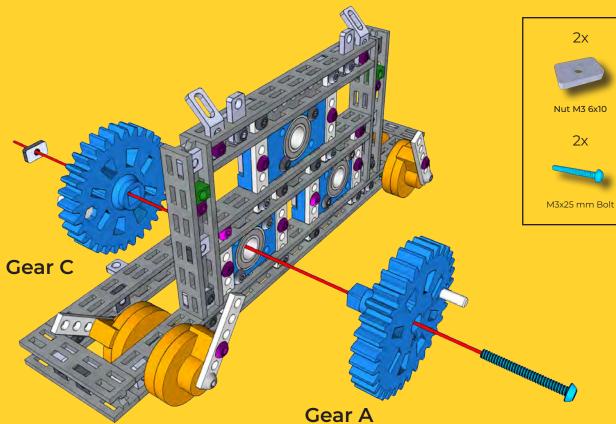
Lower Gear D

8x

9.5 cm/19 Holes Strip Bracket



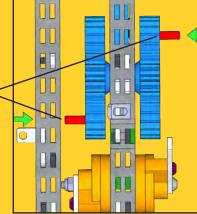




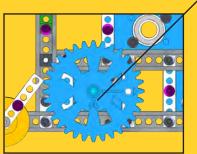
Lower Gear A Lower Gear C

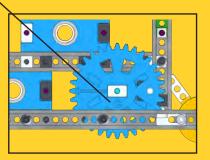
Part 2

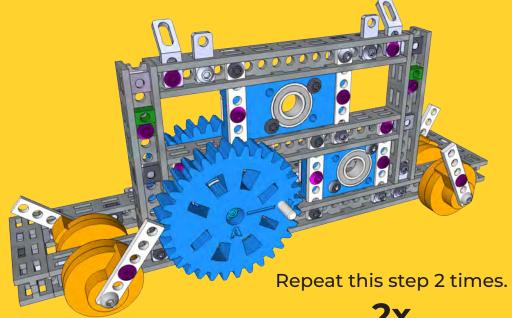
Bolts (in red) will be diagonally opposite to each other.

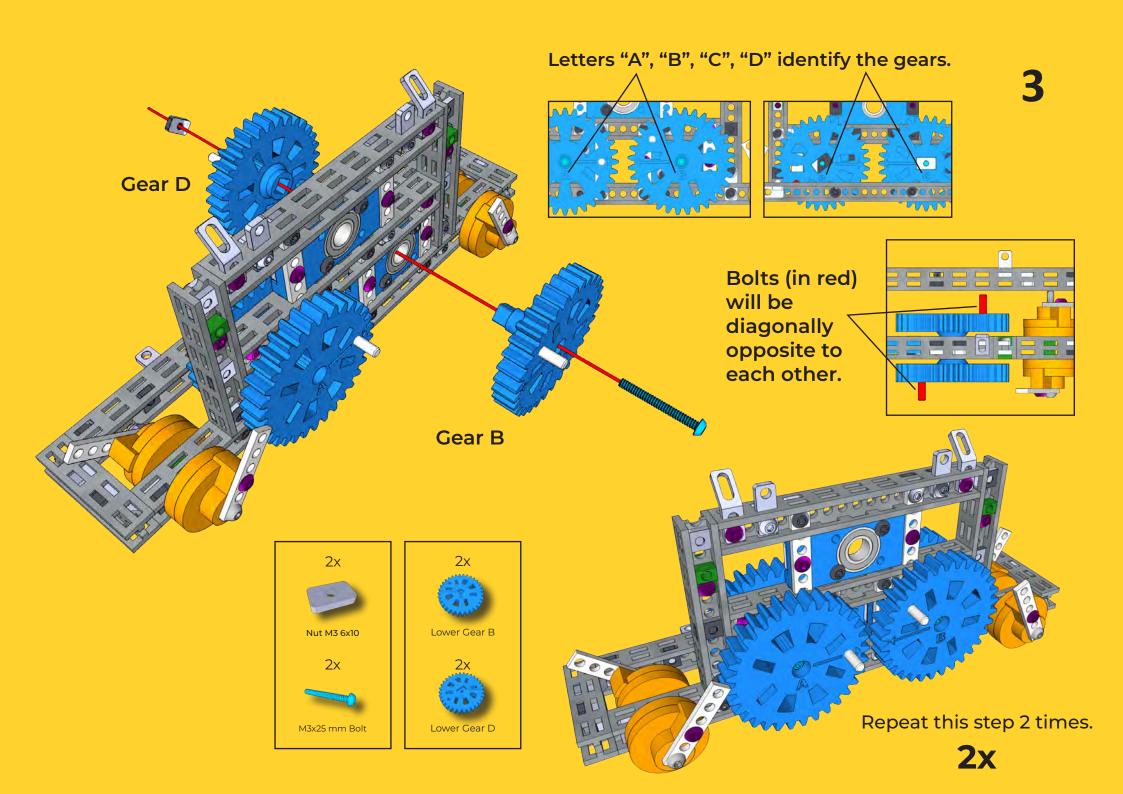


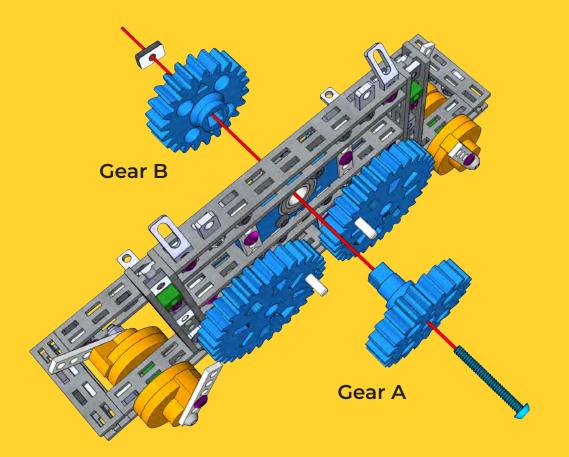
Letters "A" and "C" identify the gears, in the middle of the parts.

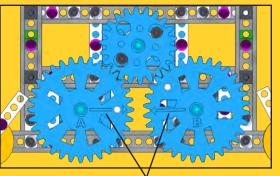




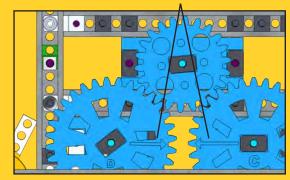








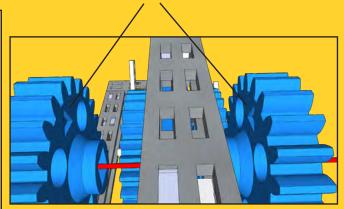
Arrows must point to each other on both sides.

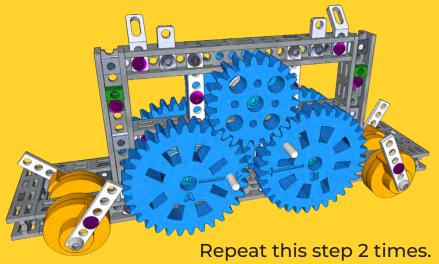


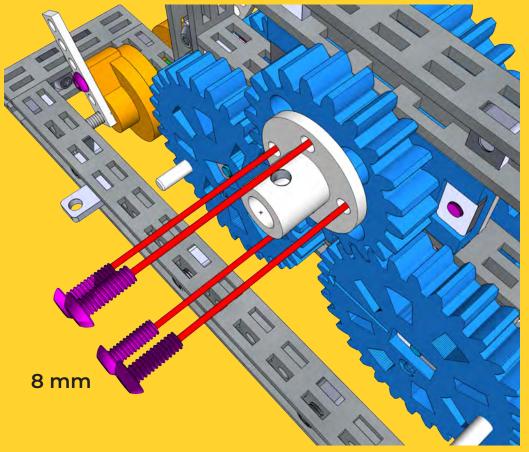
Triangles must point at the same direction on both upper gears.







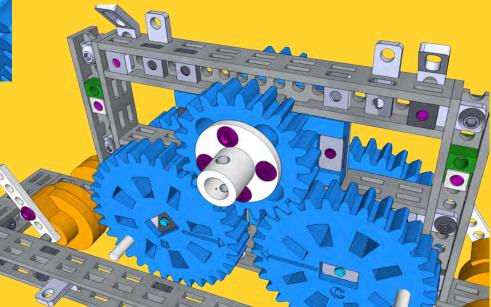


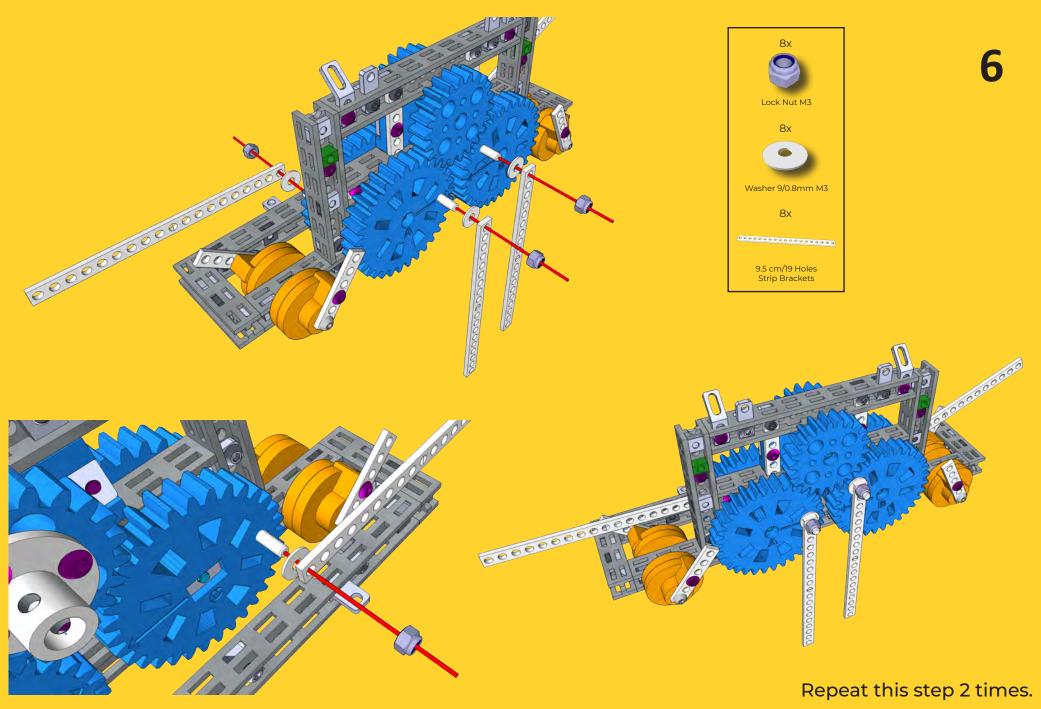


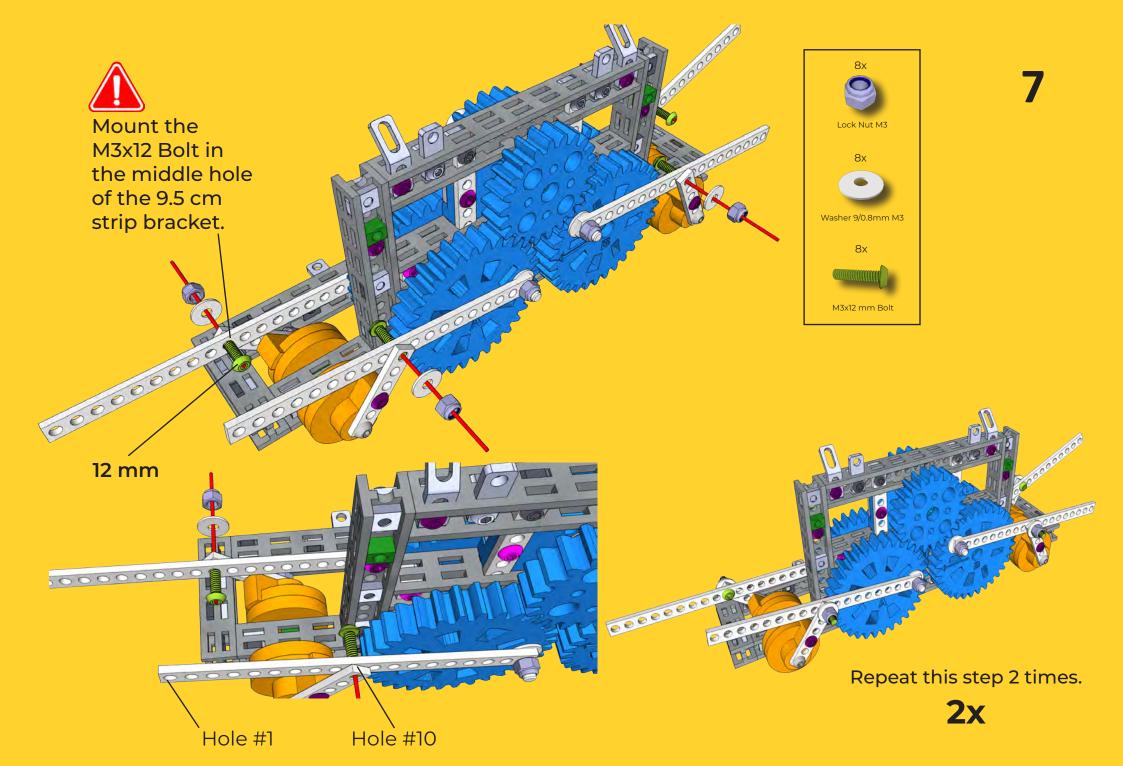


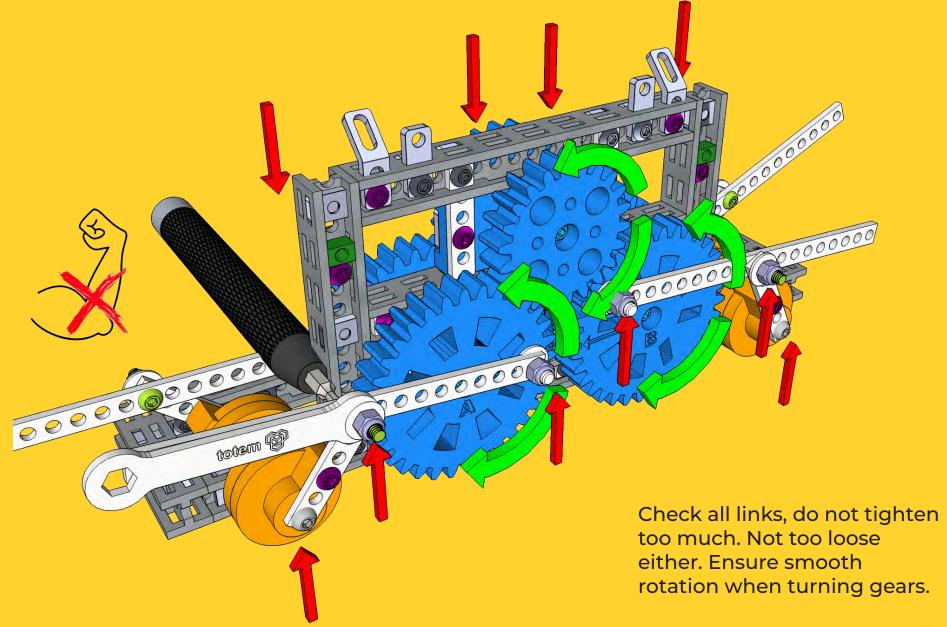
Repeat this step 2 times.





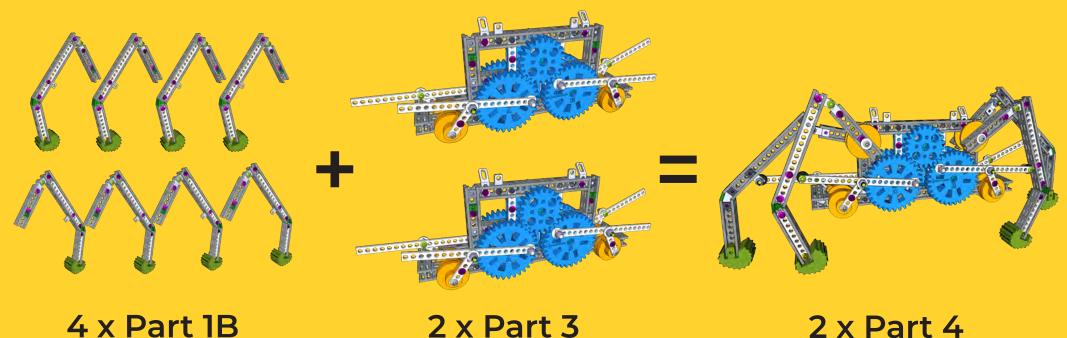




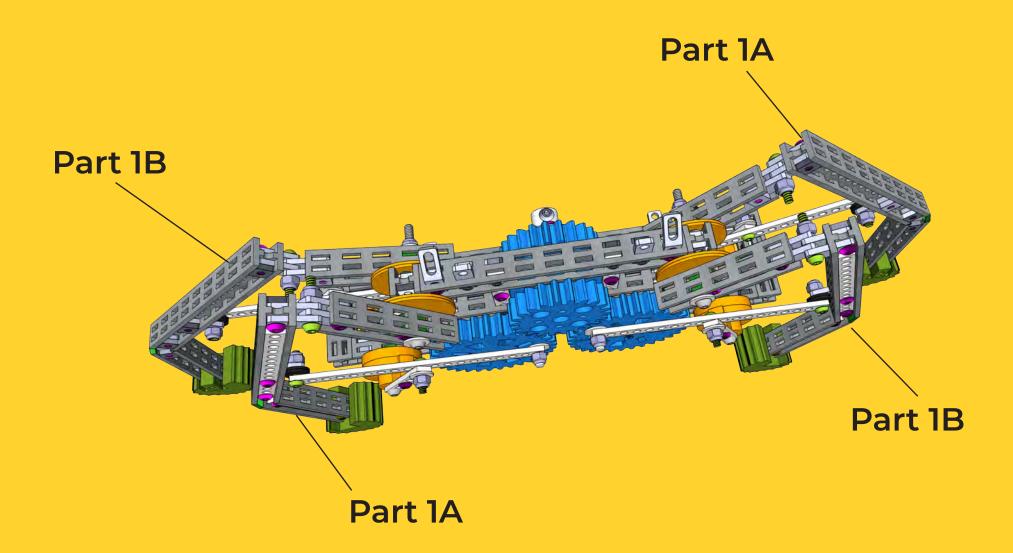


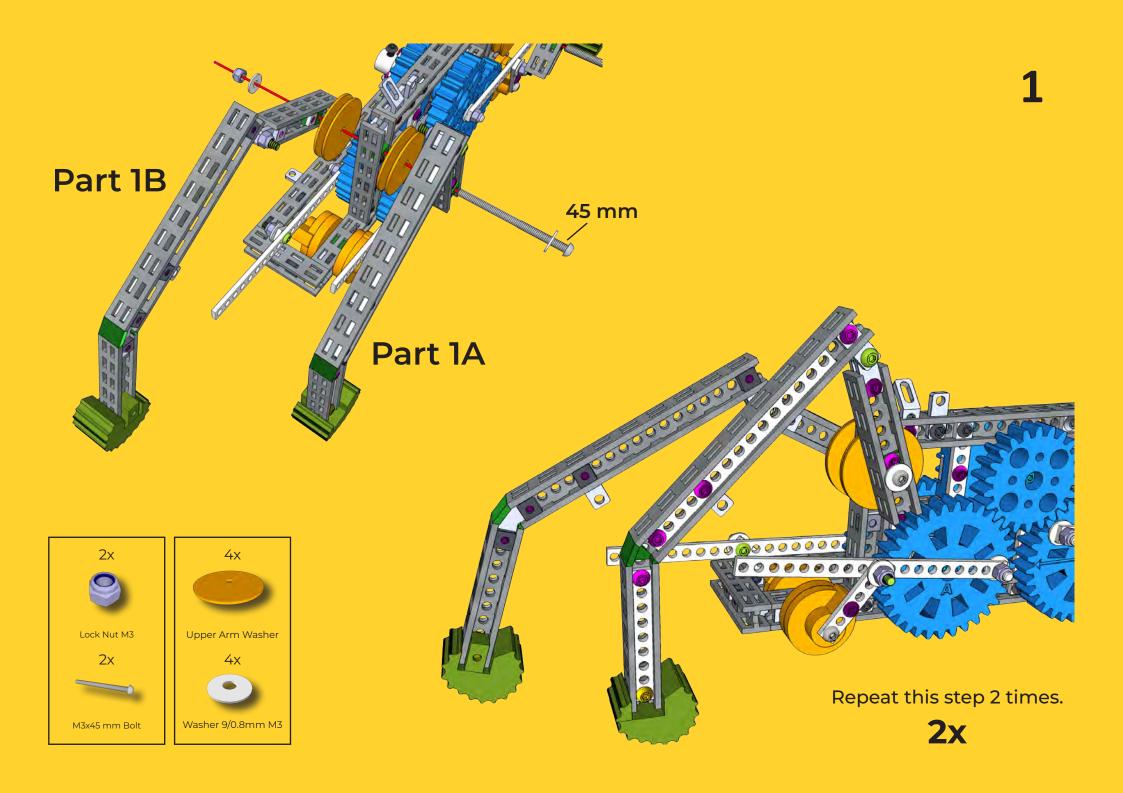


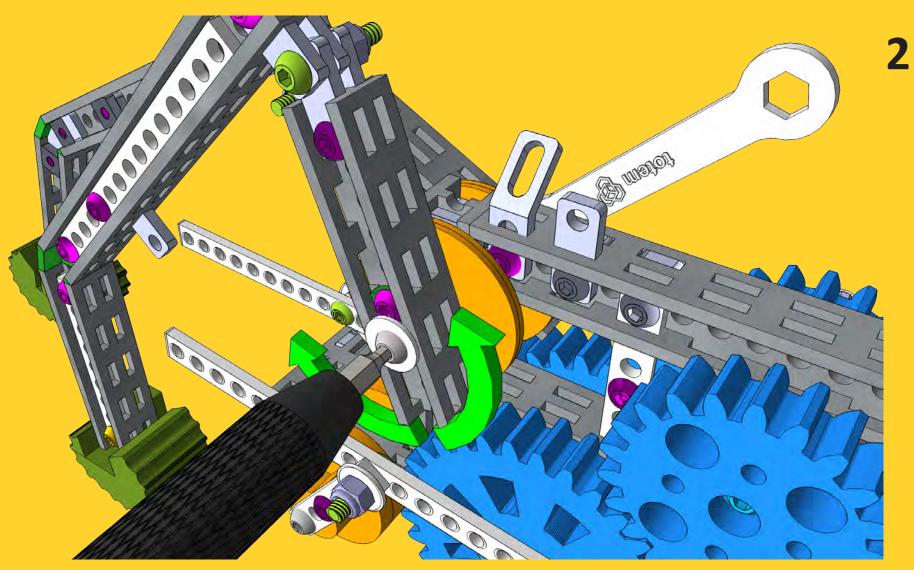
#### 4 x Part 1A



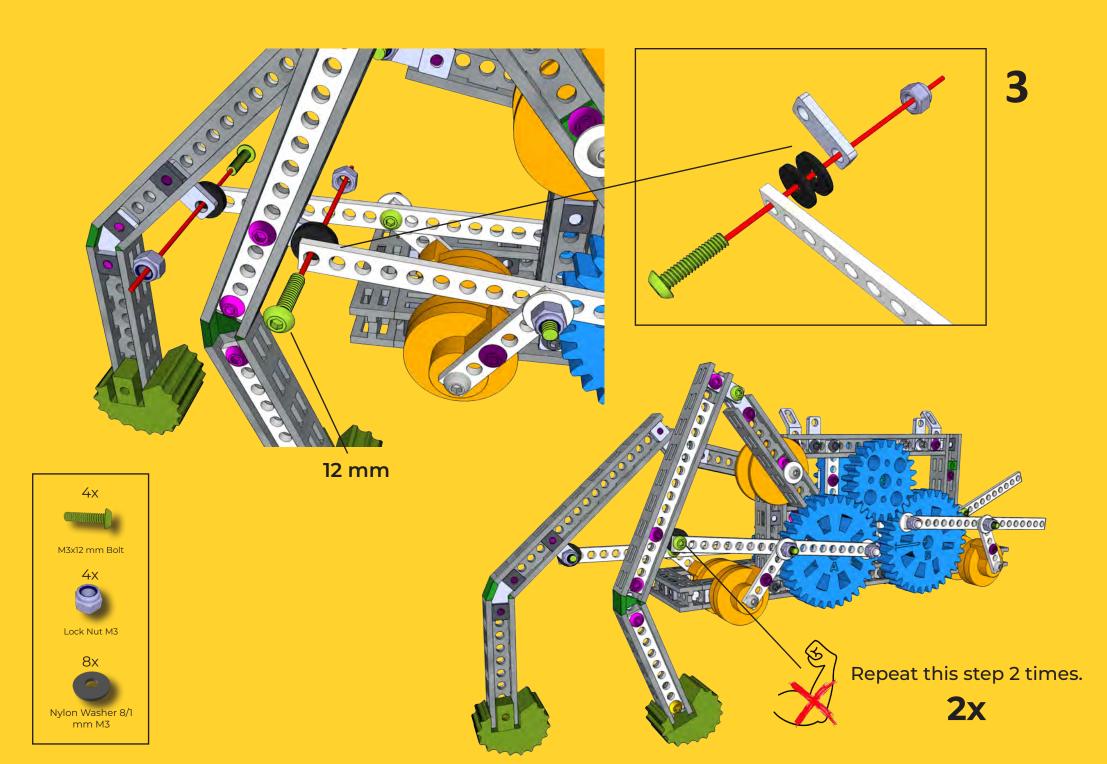


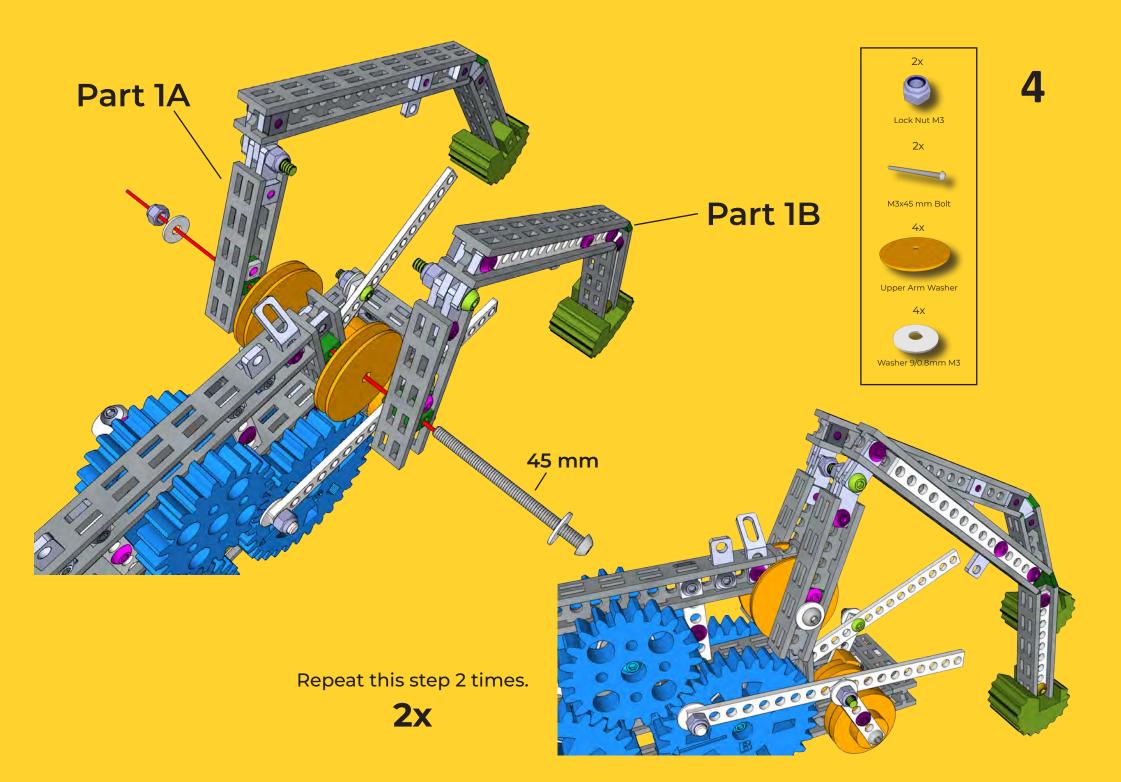


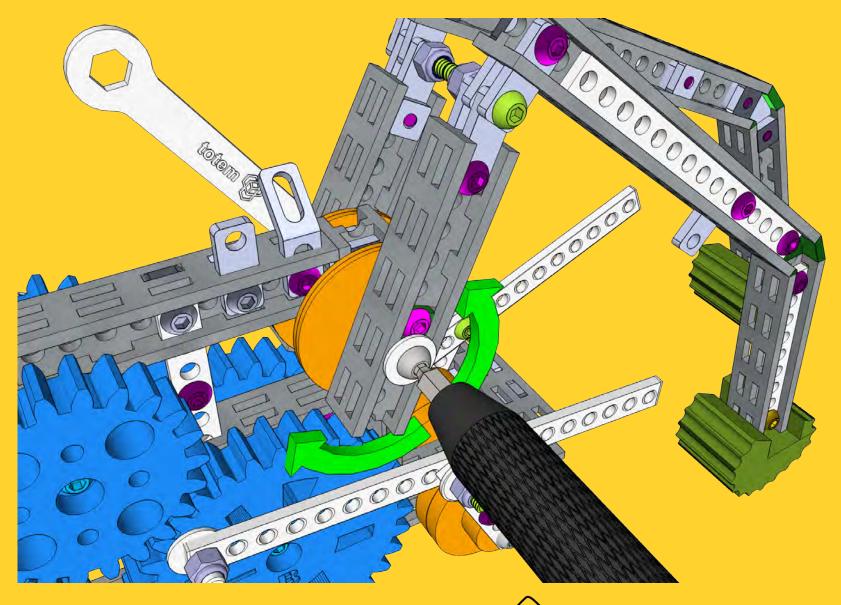






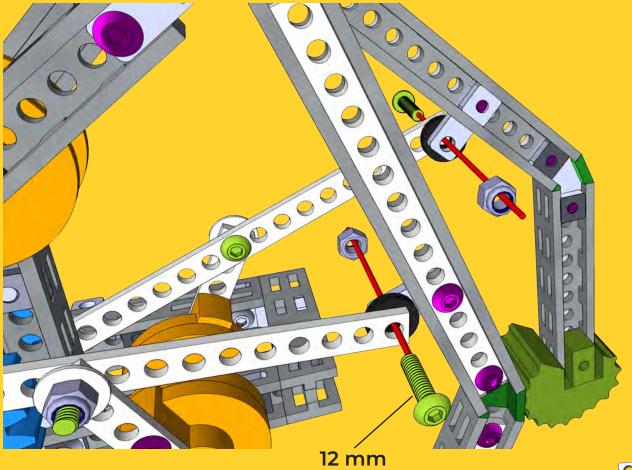












4X

M3x12 mm Bolt

4X

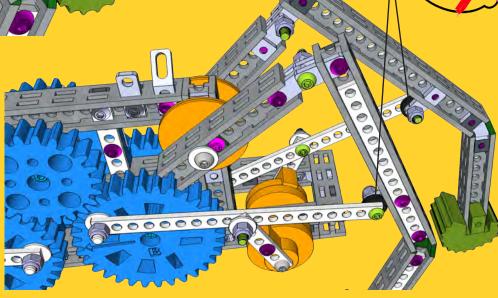
Lock Nut M3

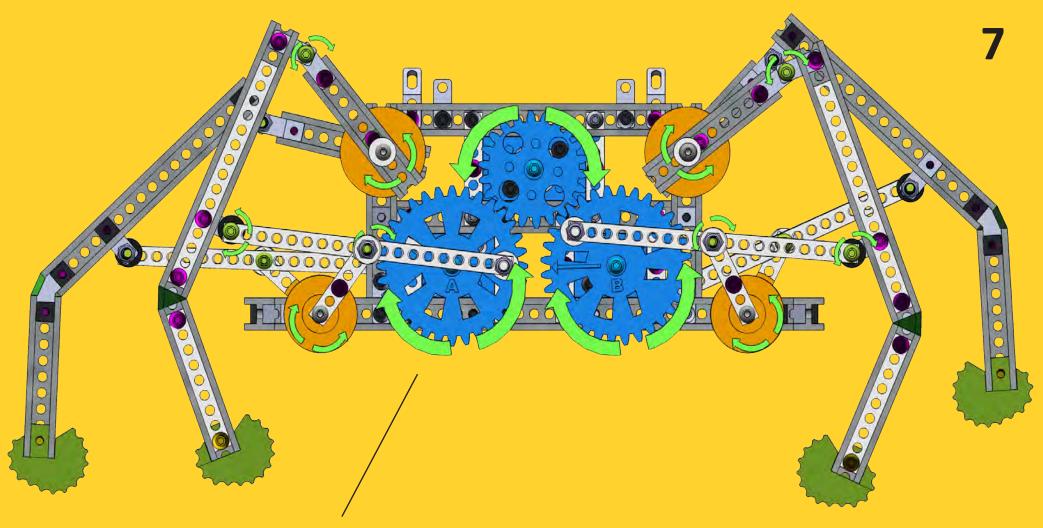
8X

Nylon Washer 8/1 mm M3

Do not overtighten.

Repeat this step 2 times.





Try spinning the gears with your hands, and check if it has a smooth motion. Legs and links should not be too wobbly.



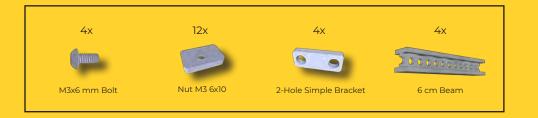


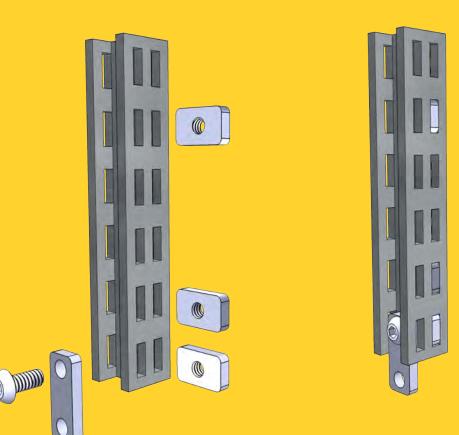




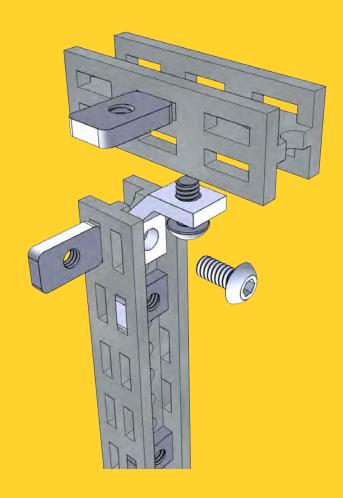




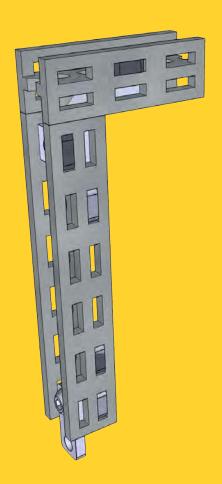




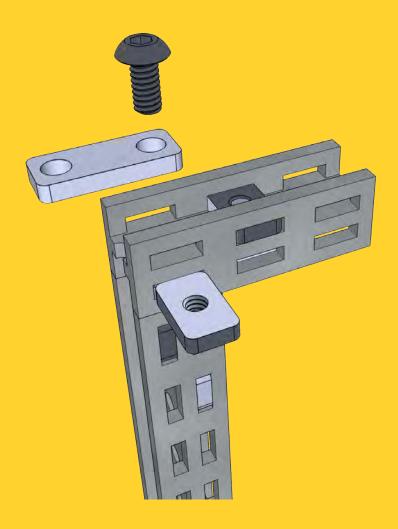
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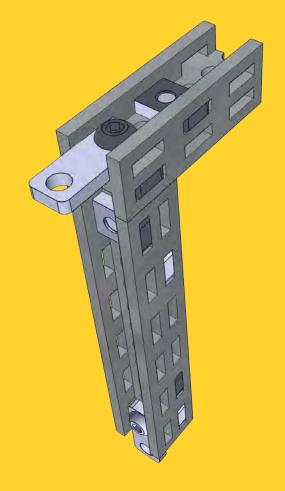






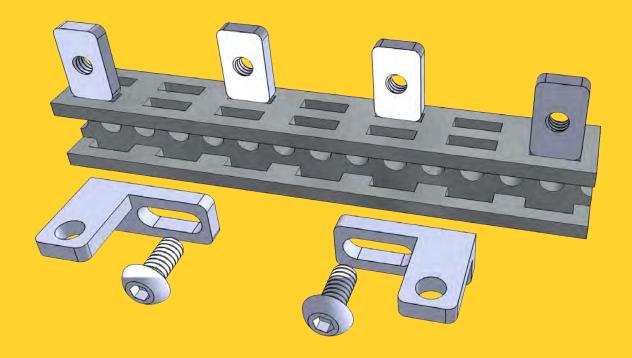
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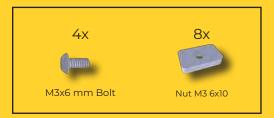




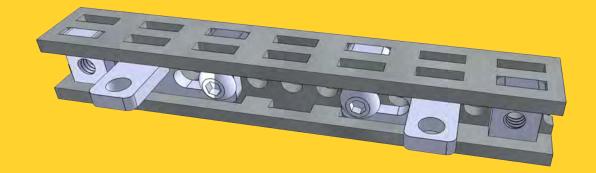
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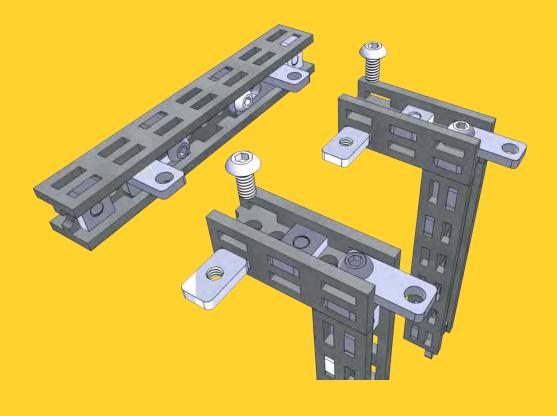




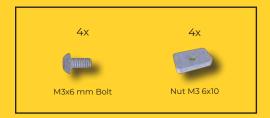




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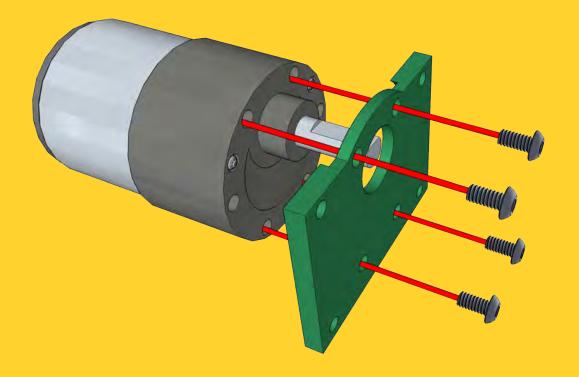


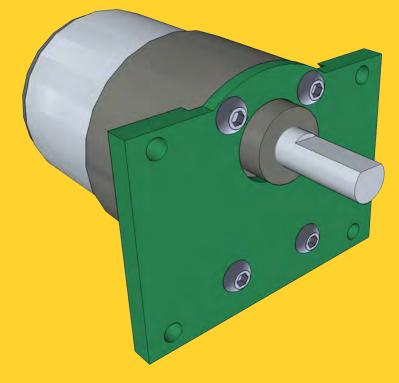




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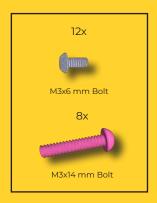


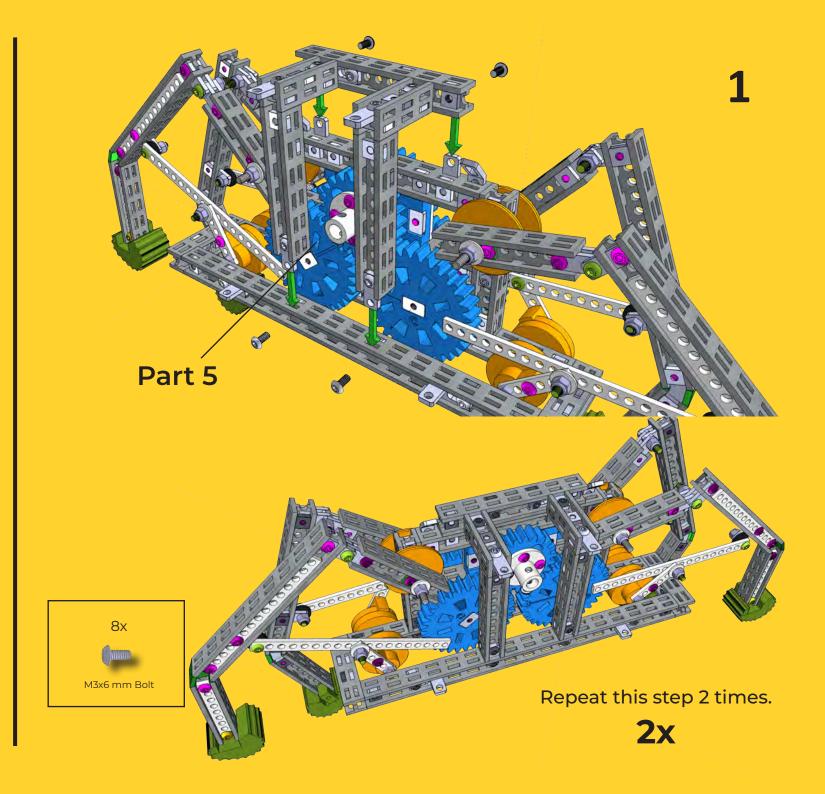


8x 2x 2x

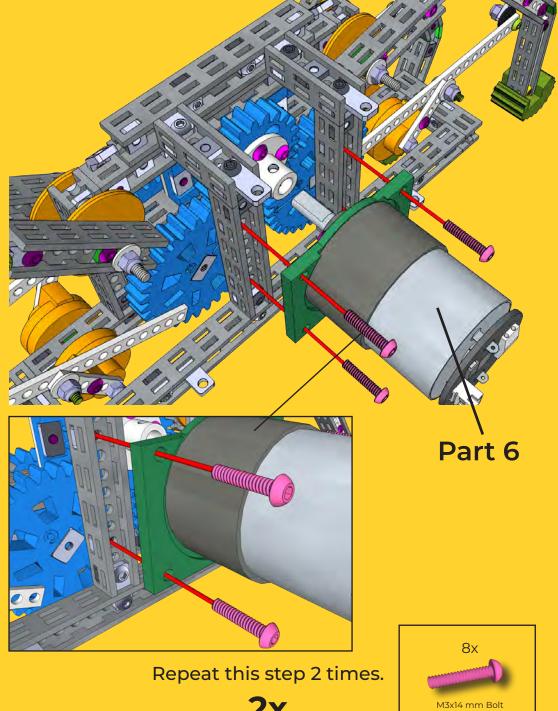
M3x6 mm Bolt Motor-Plate 37 mm 37 mm DC Motor

Repeat this step 2 times.



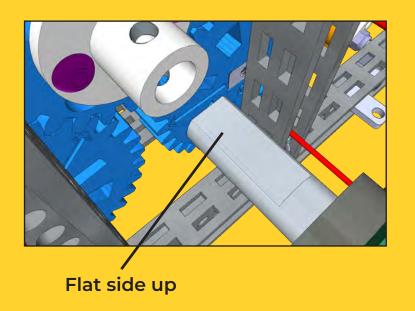


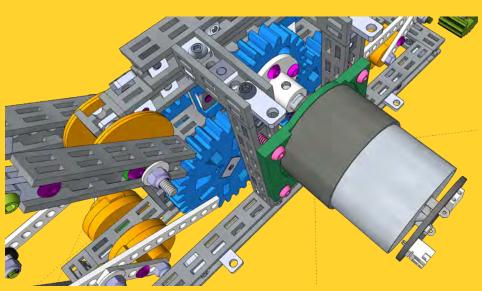


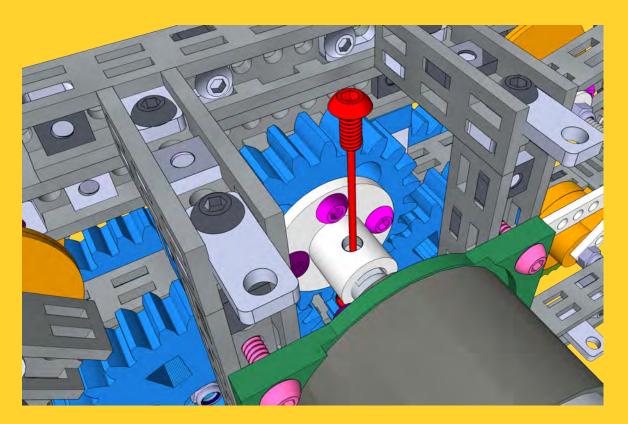


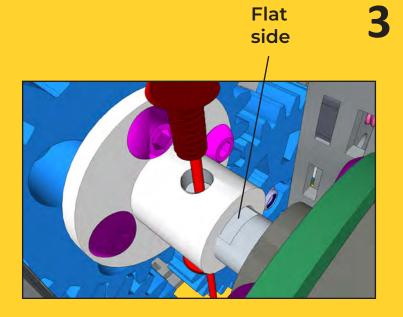


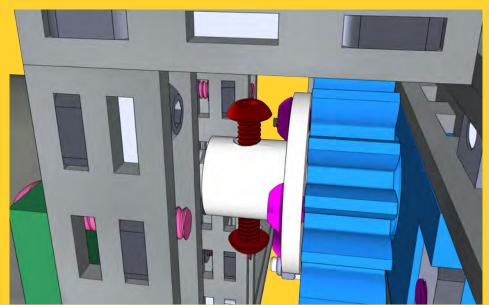






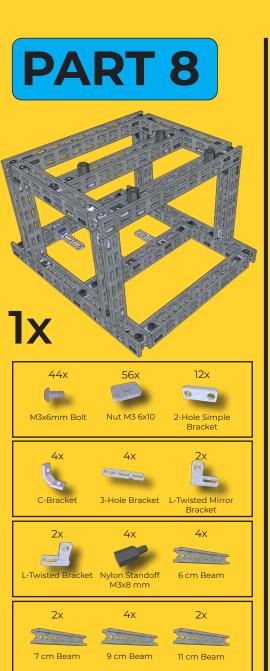






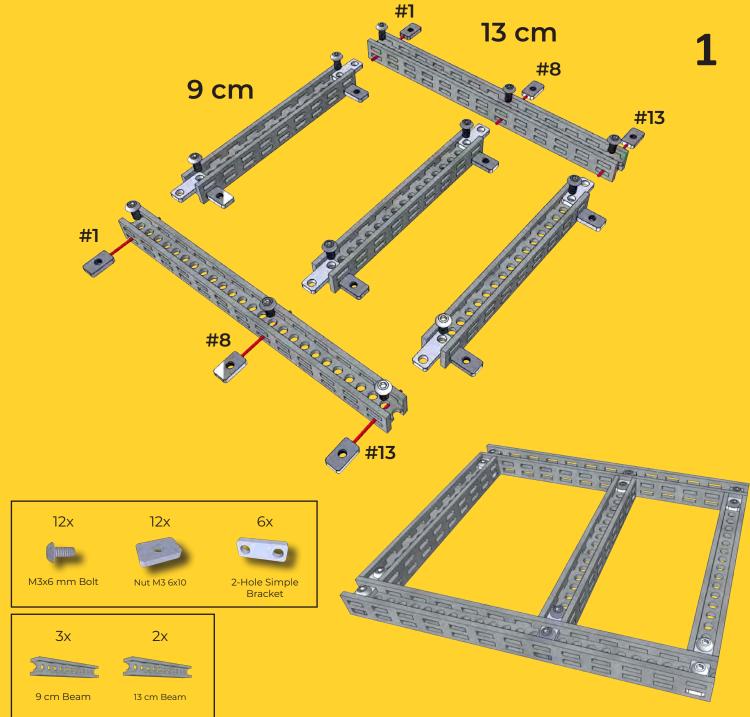




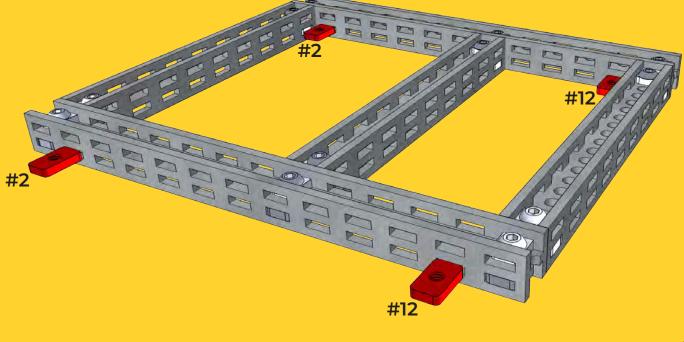


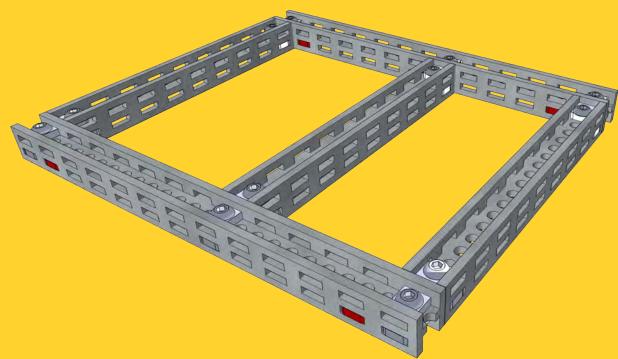
2x

13 cm Beam

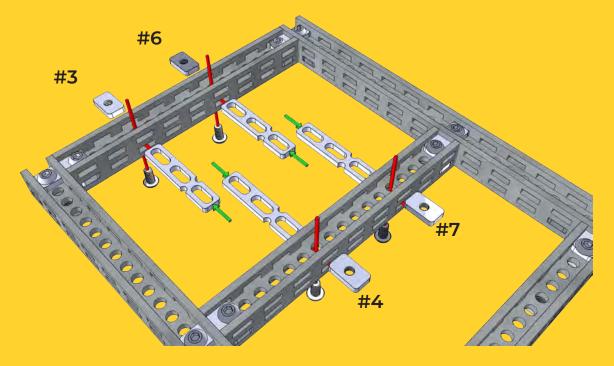




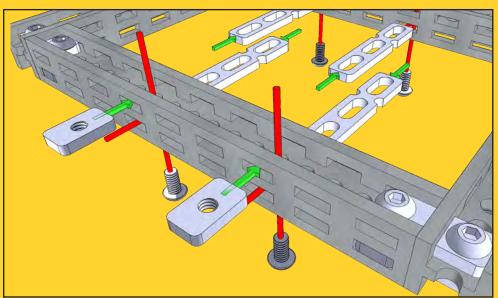


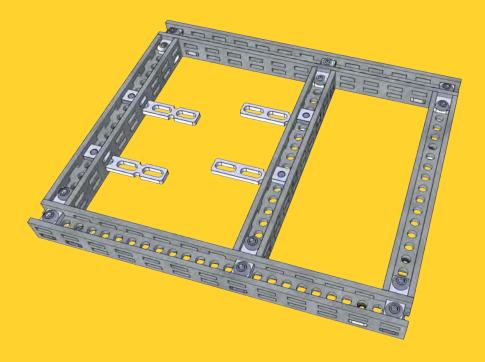




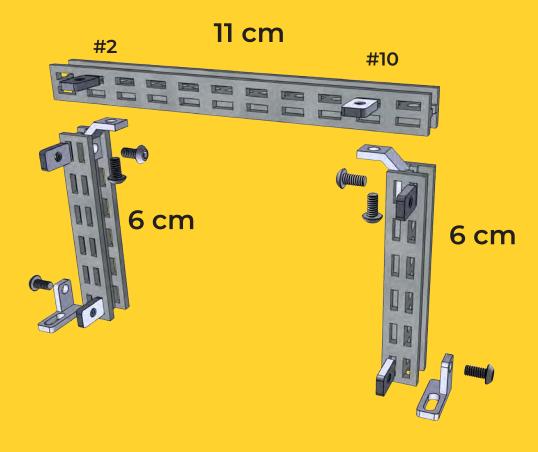


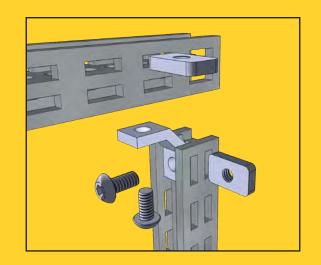




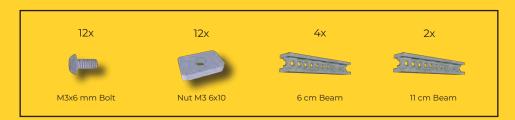






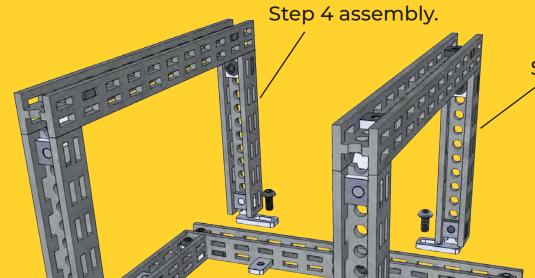








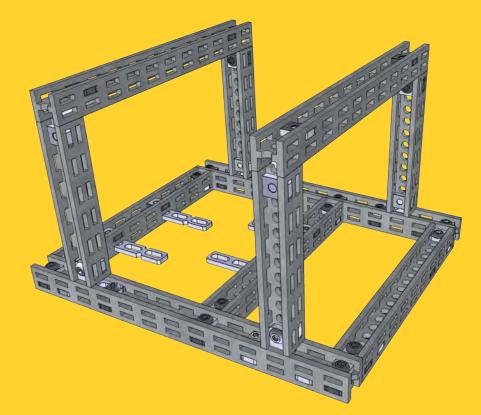




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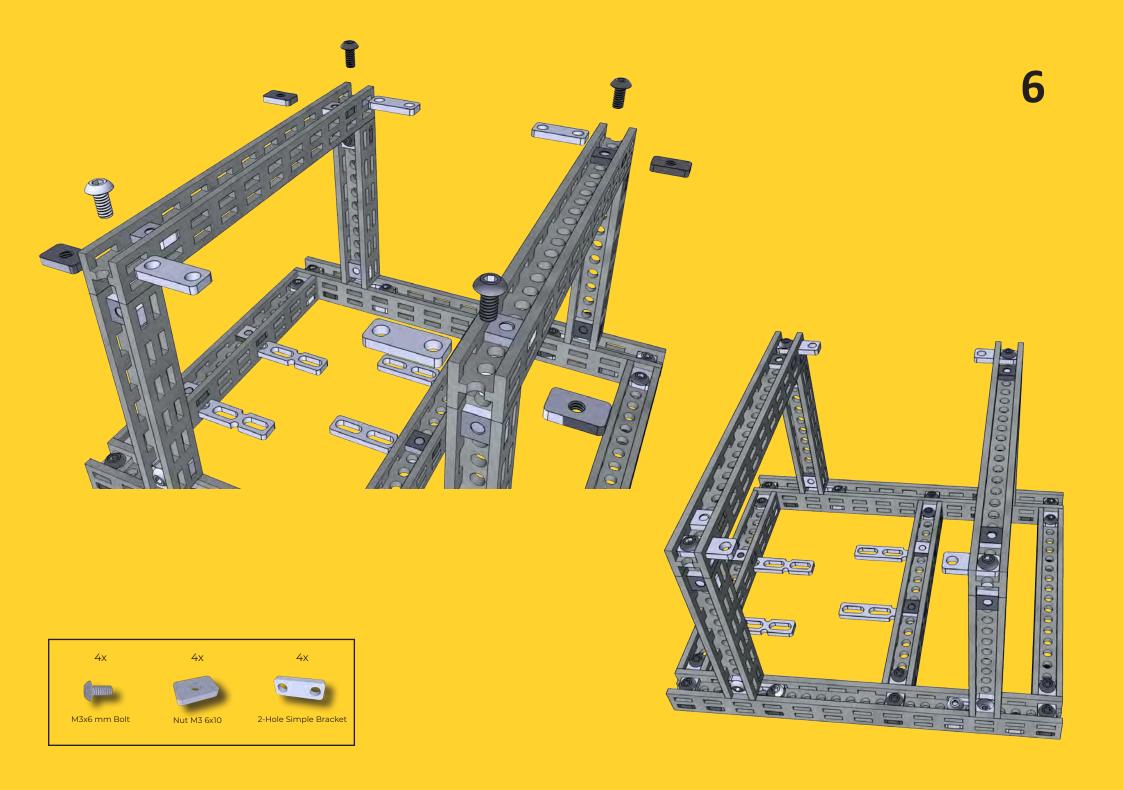
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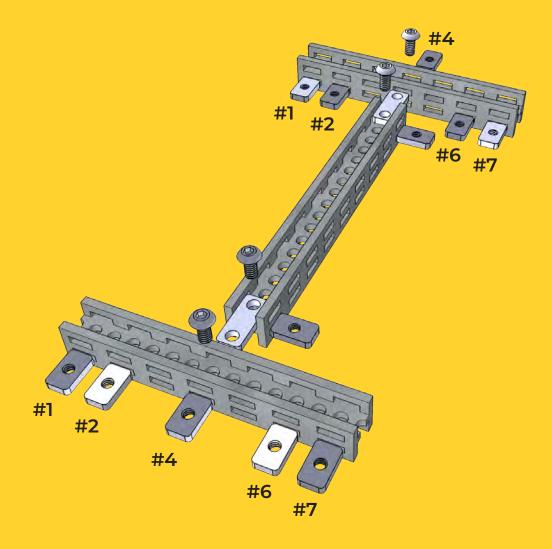
Step 4 assembly.

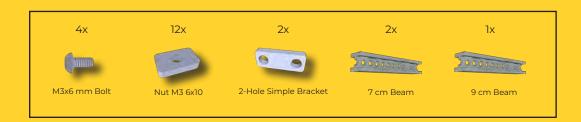


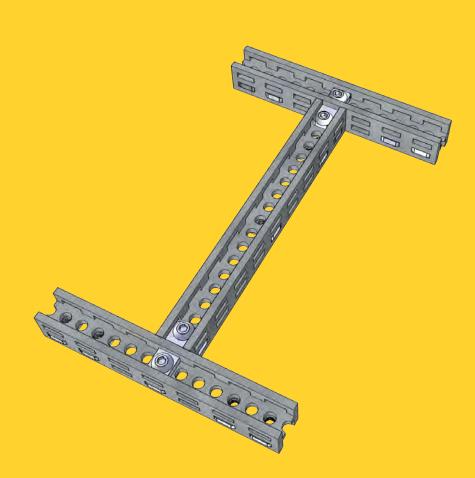


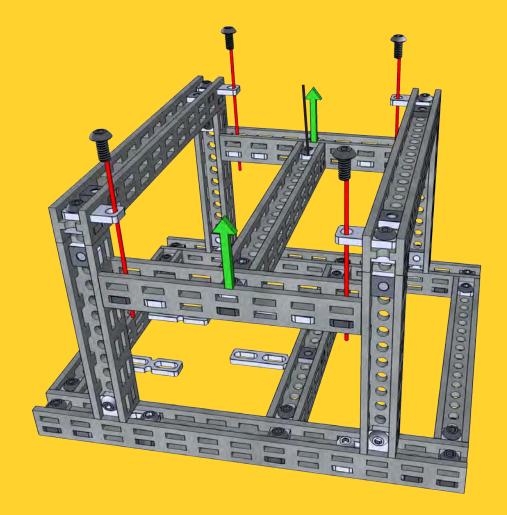
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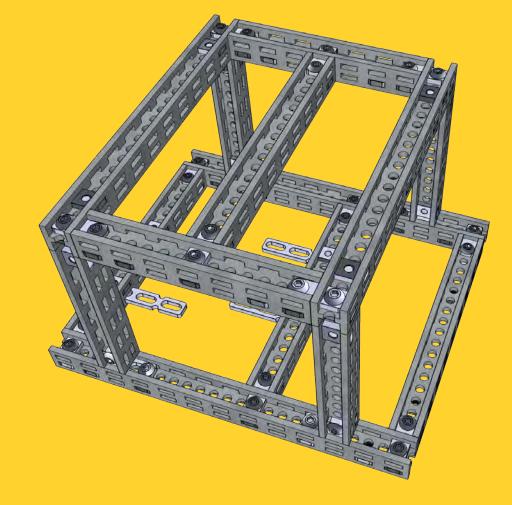




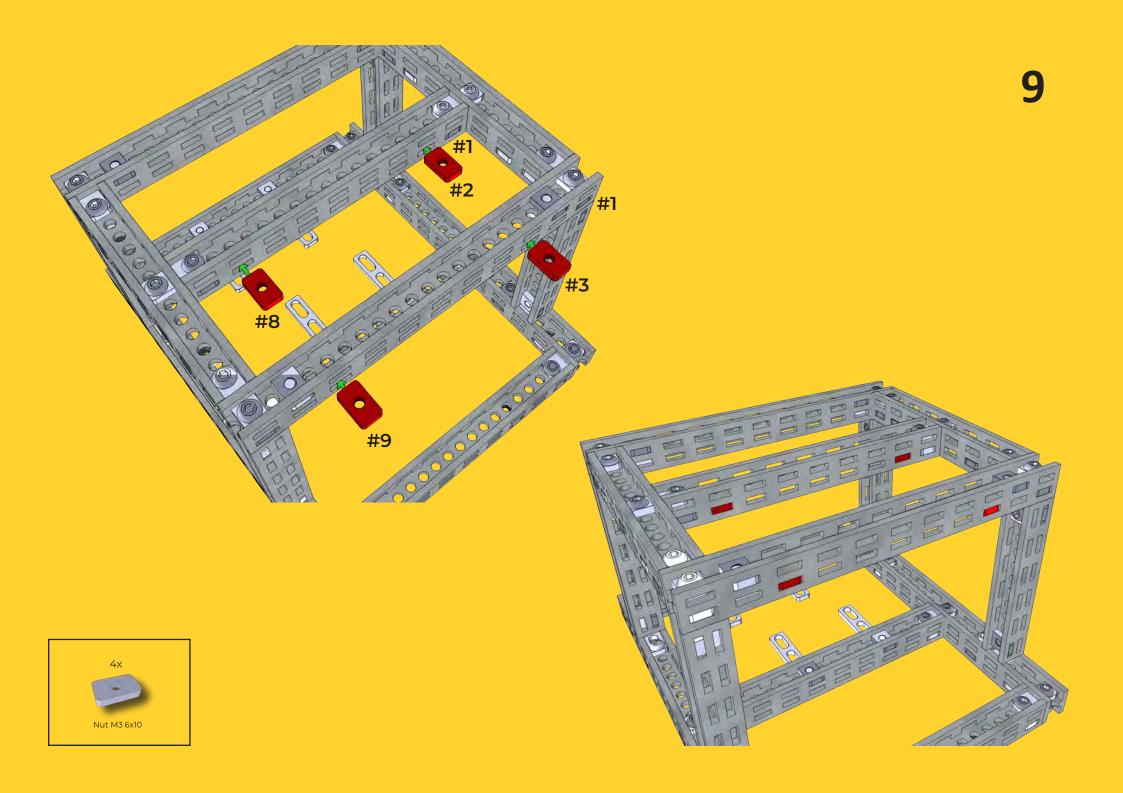


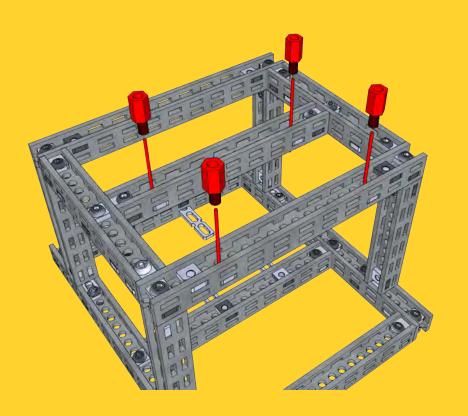


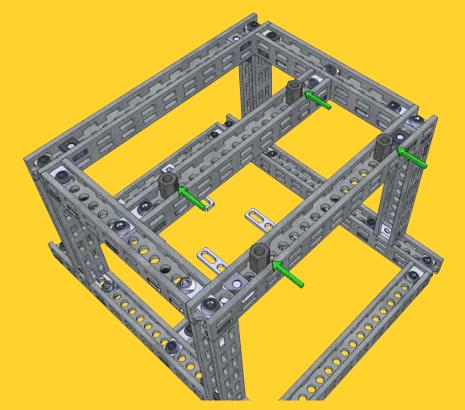


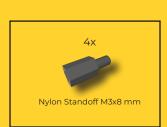


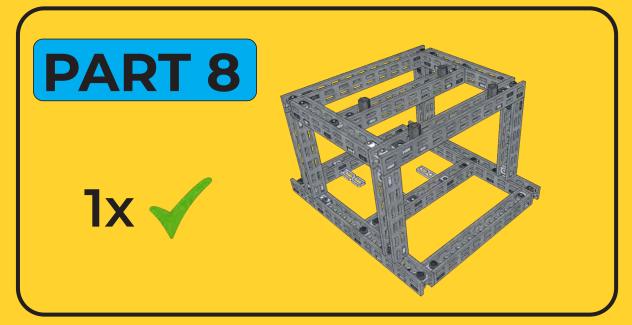


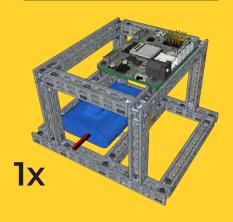




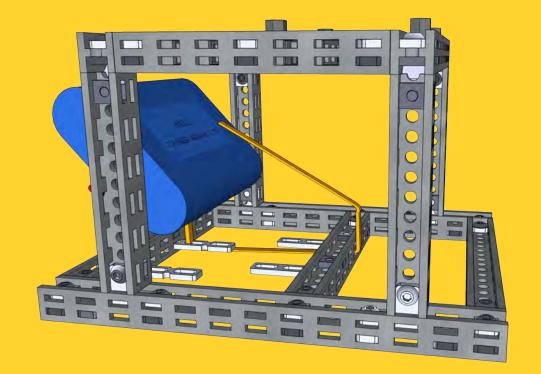


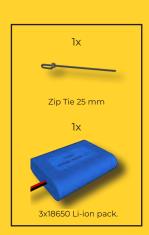


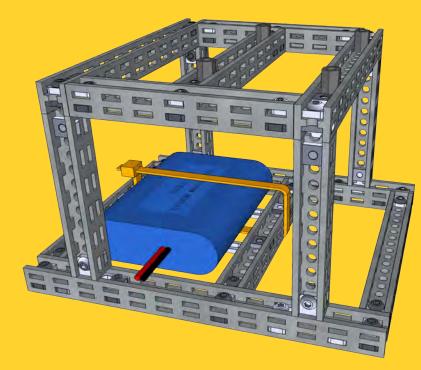


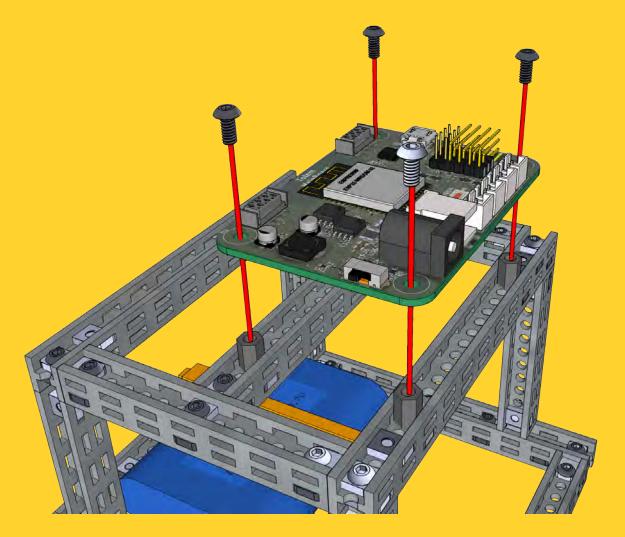


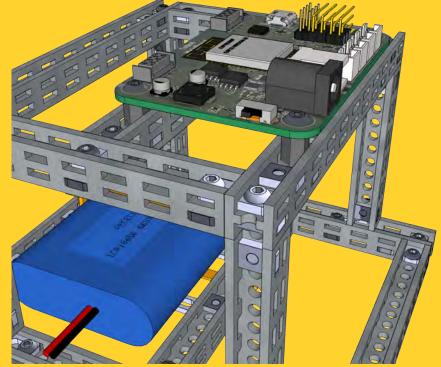


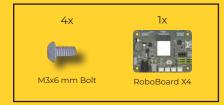


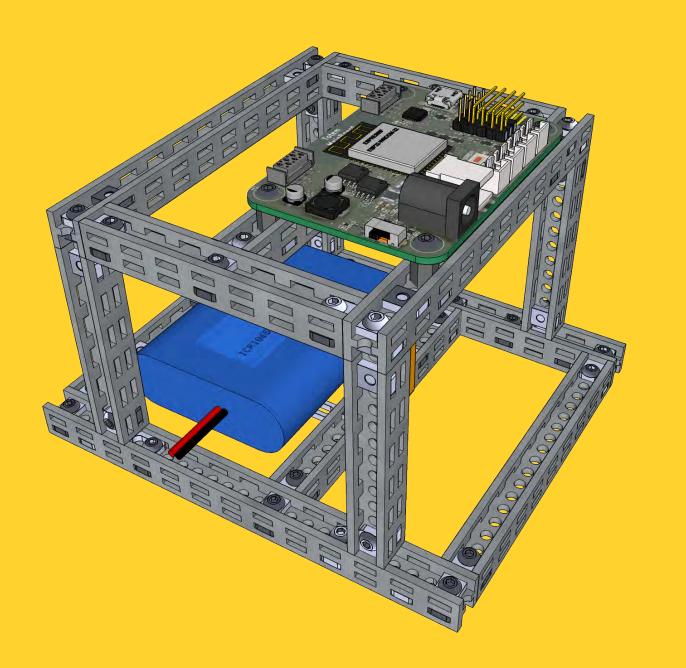




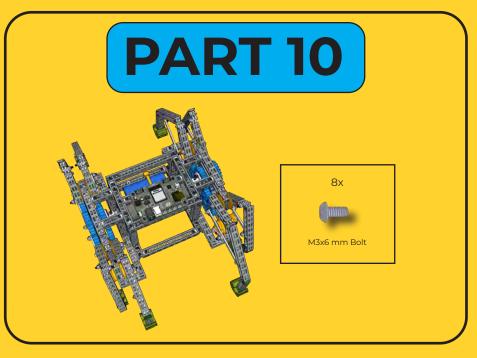


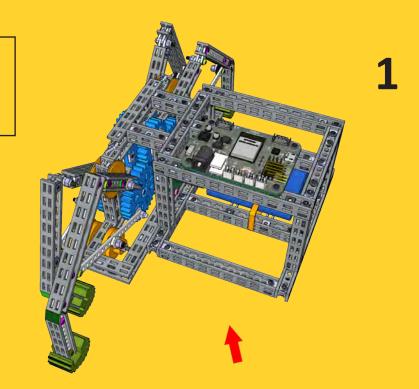




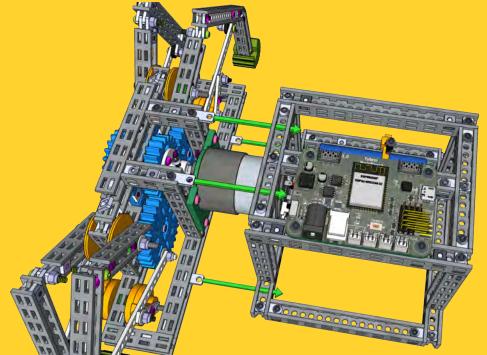


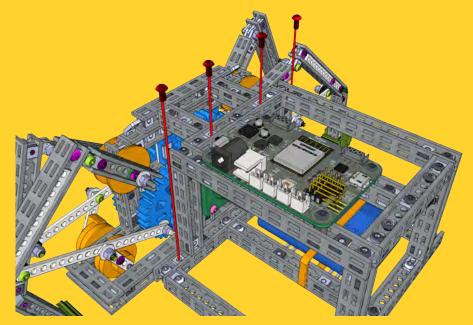
1x 🗸

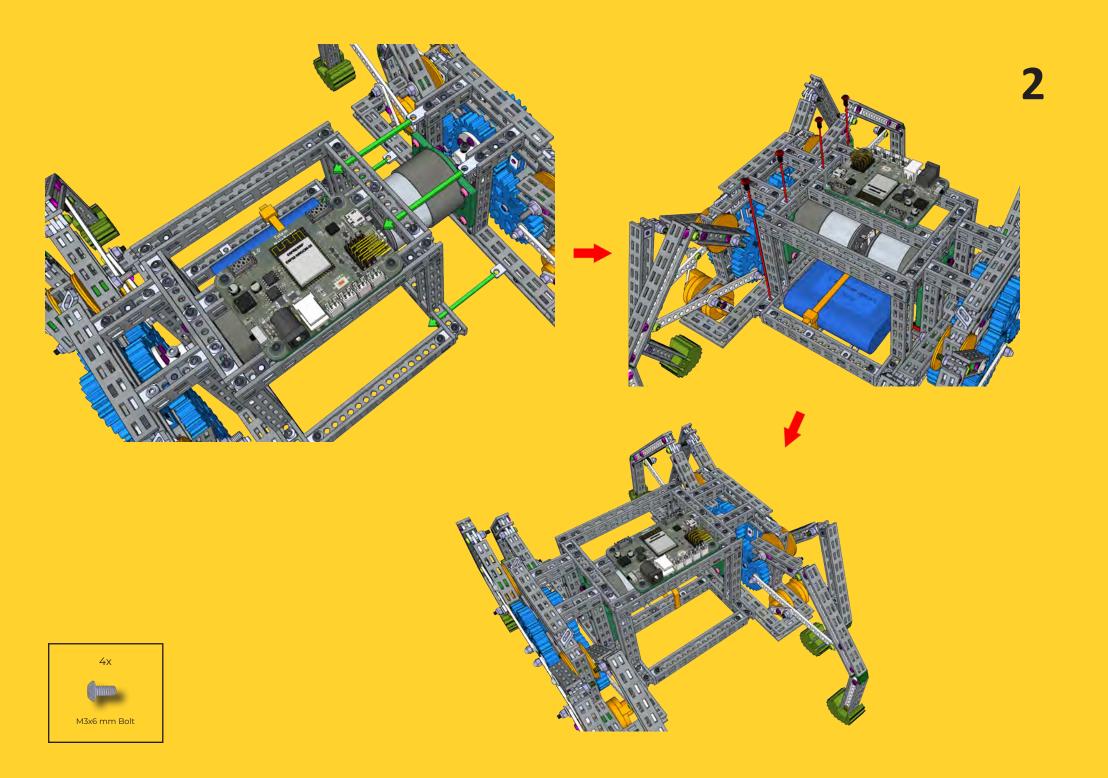


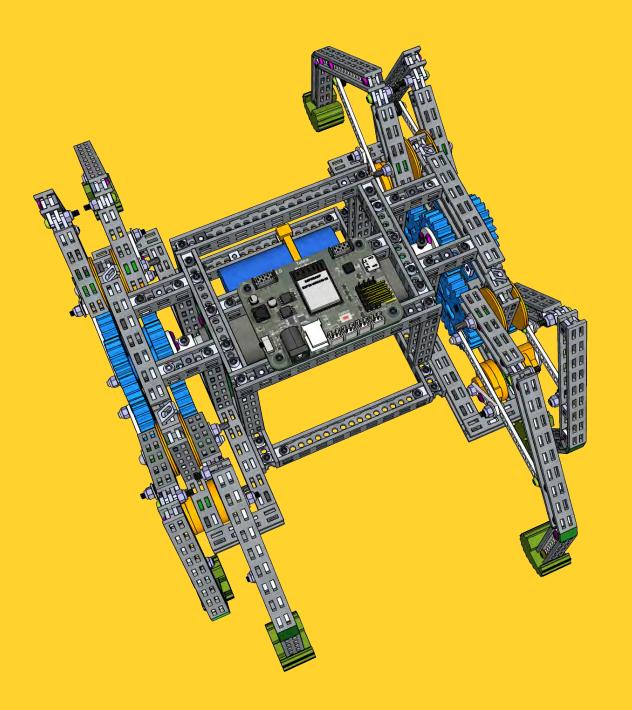


M3x6 mm Bolt





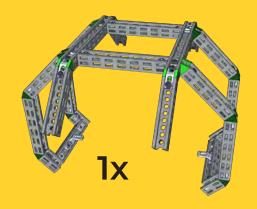




PART 3

1x **√** 

# PART 11

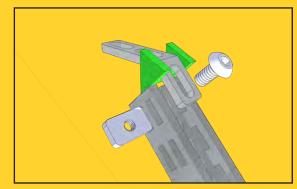


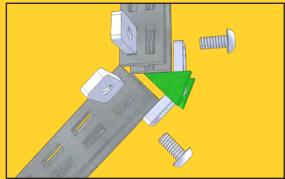


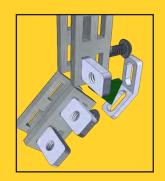


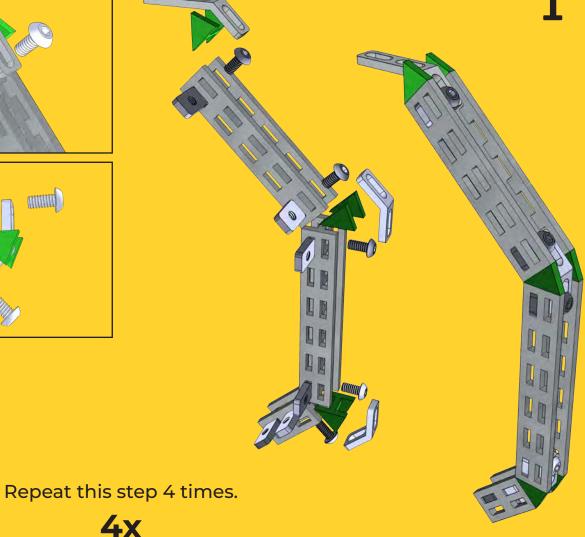






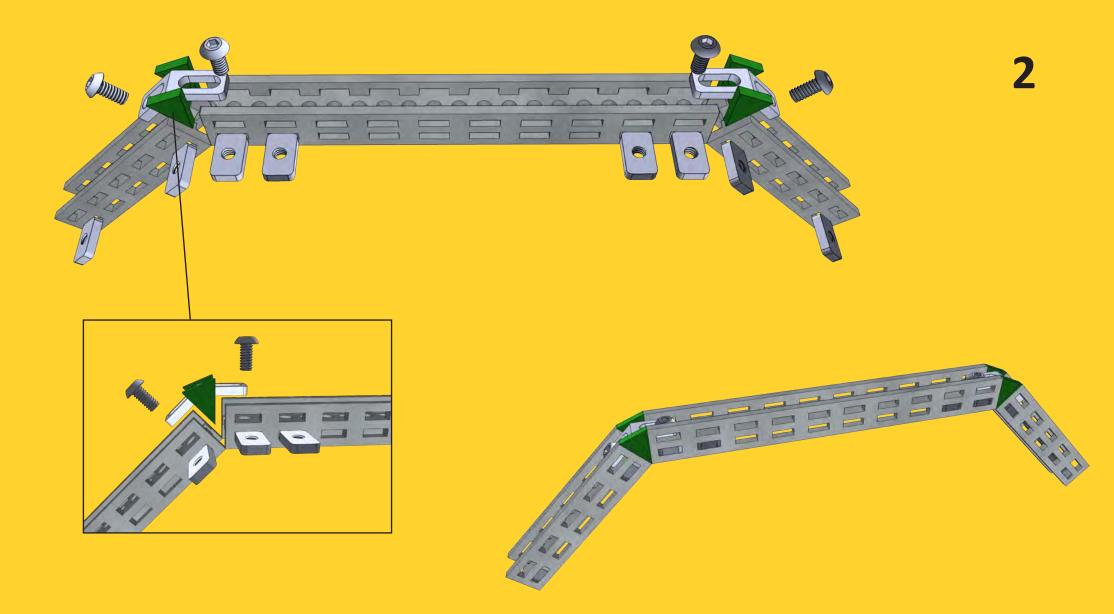








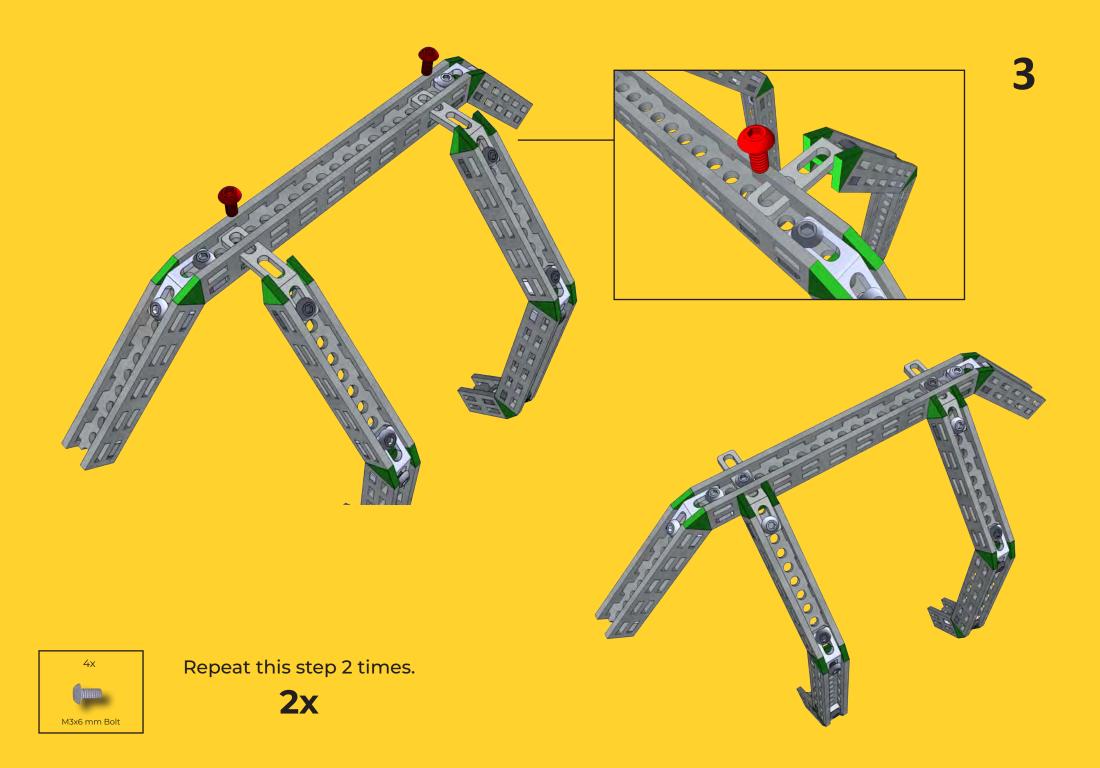


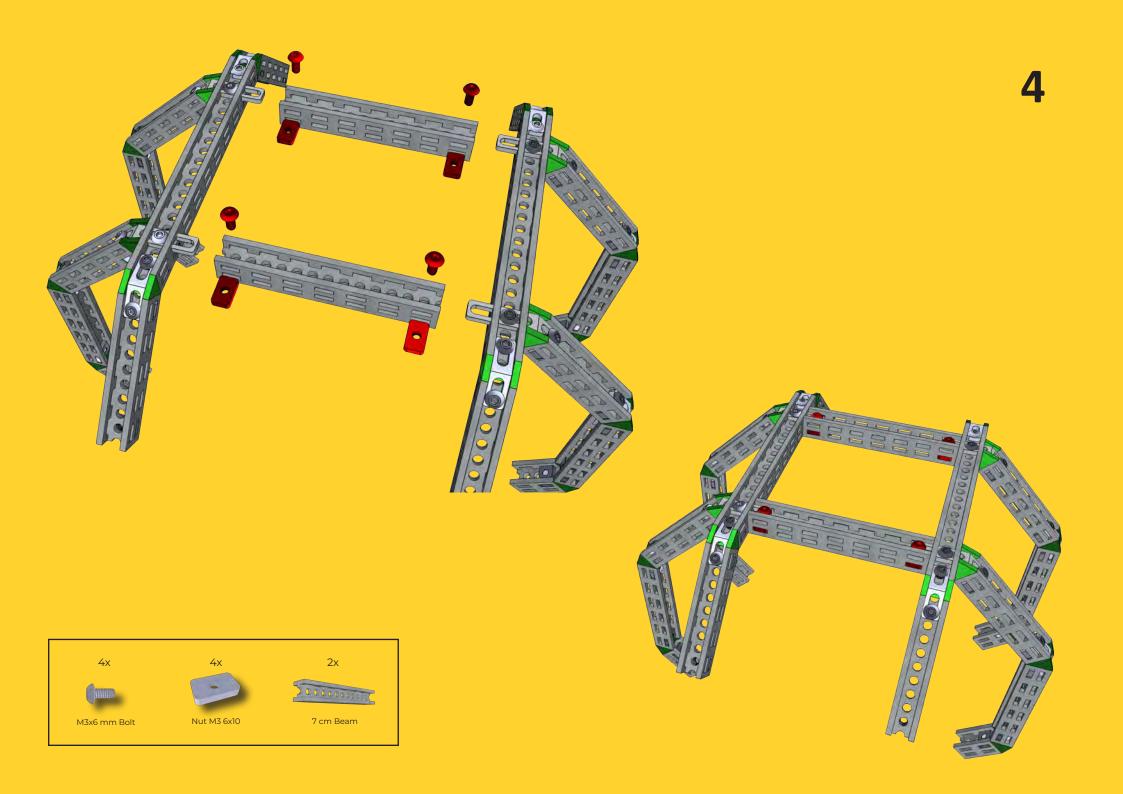


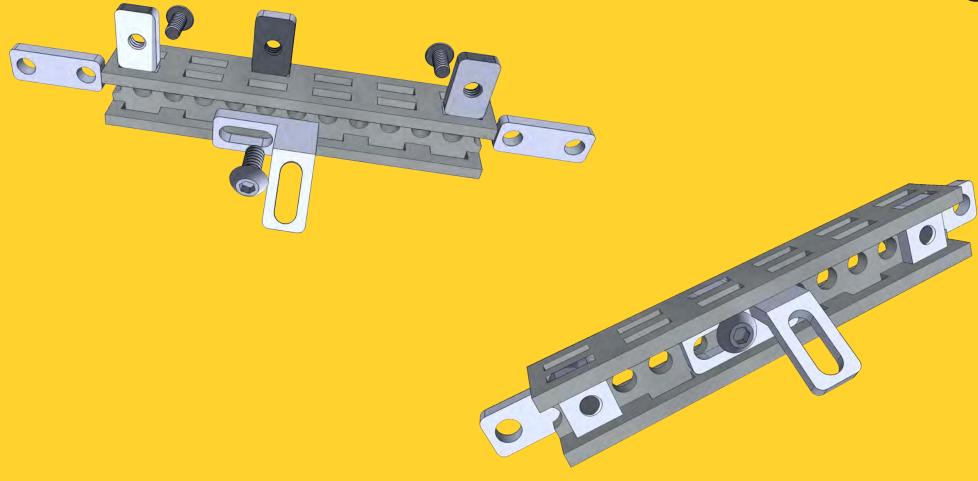


Repeat this step 2 times.

**2**x







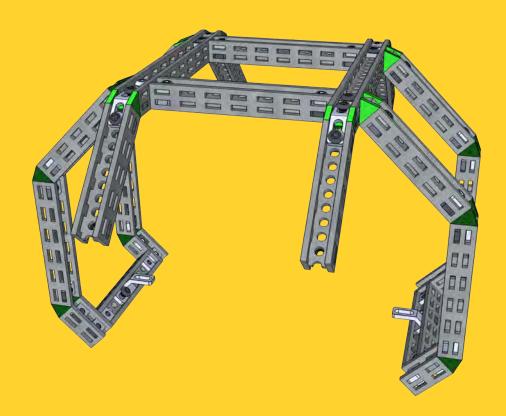


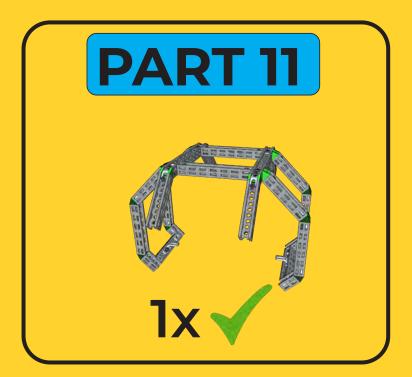
Repeat this step 2 times.





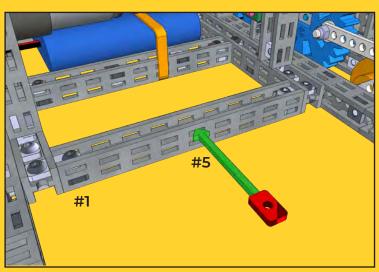


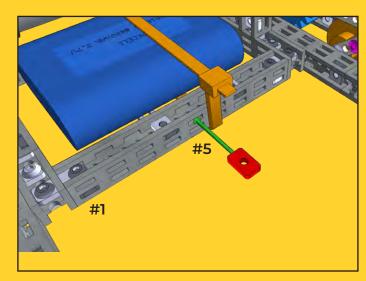


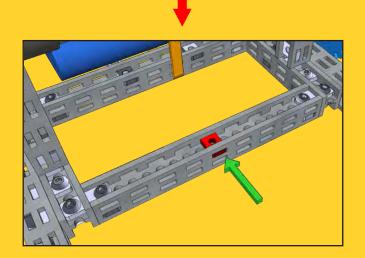


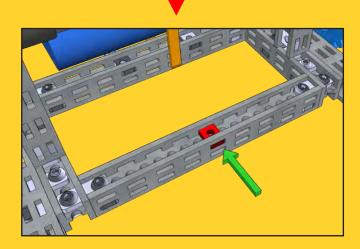




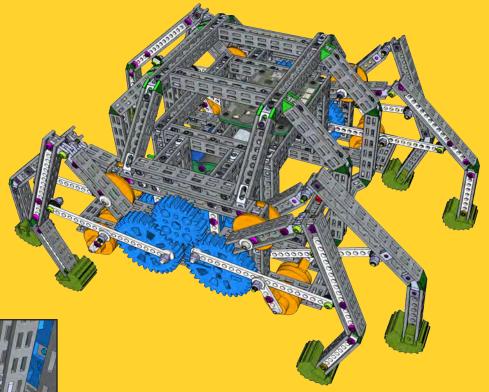


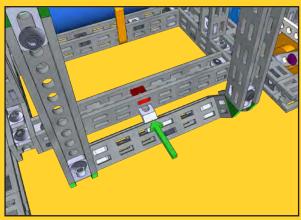


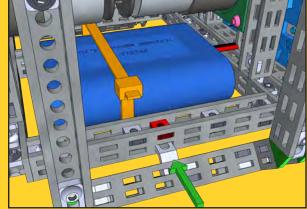


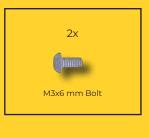


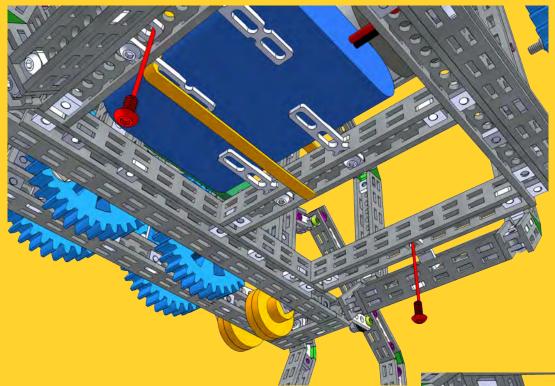


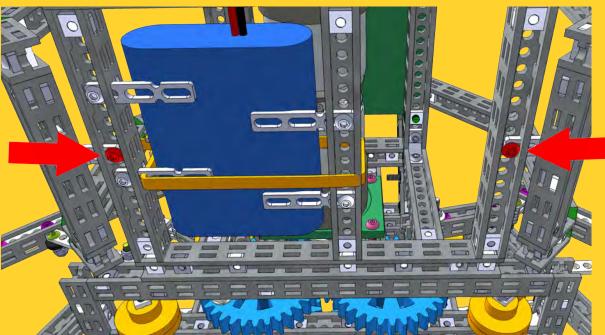










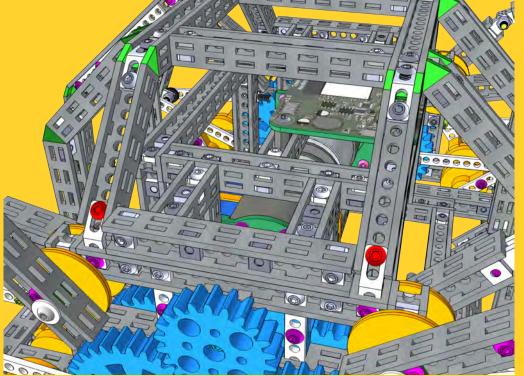


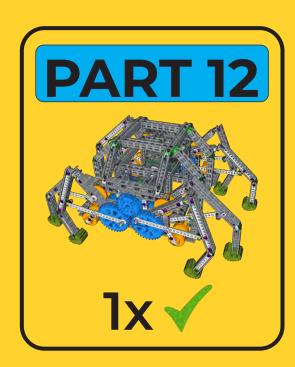




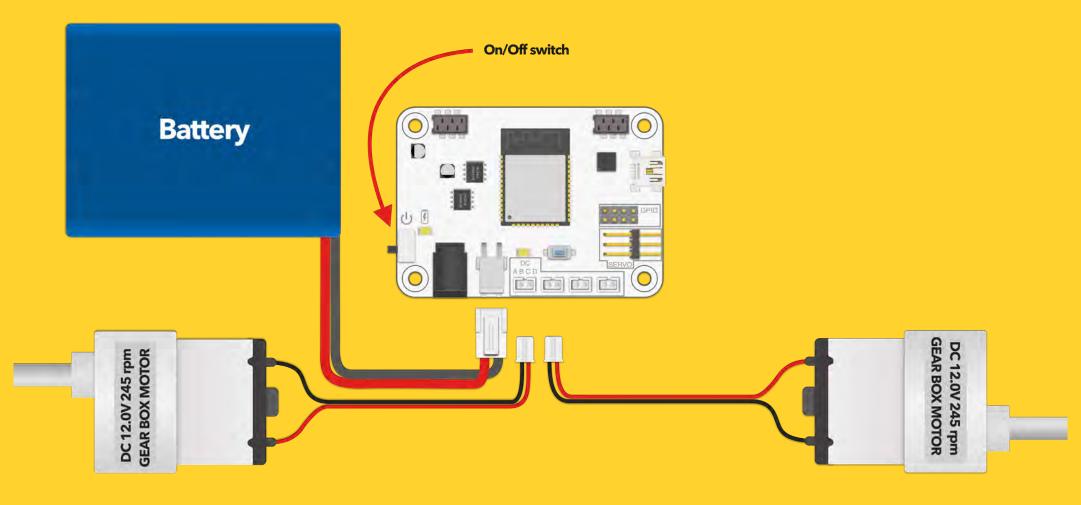
M3x6 mm Bolt





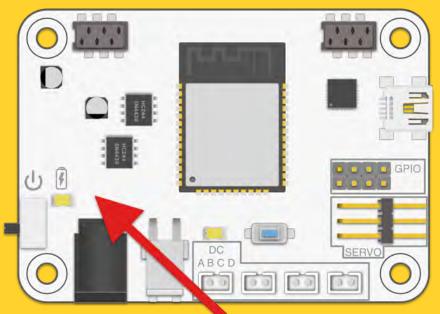


# **CONNECTING ELECTRONICS**



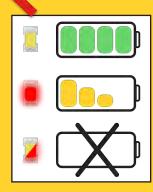
Left side motor Right side motor

## **BATTERY RECHARGING**



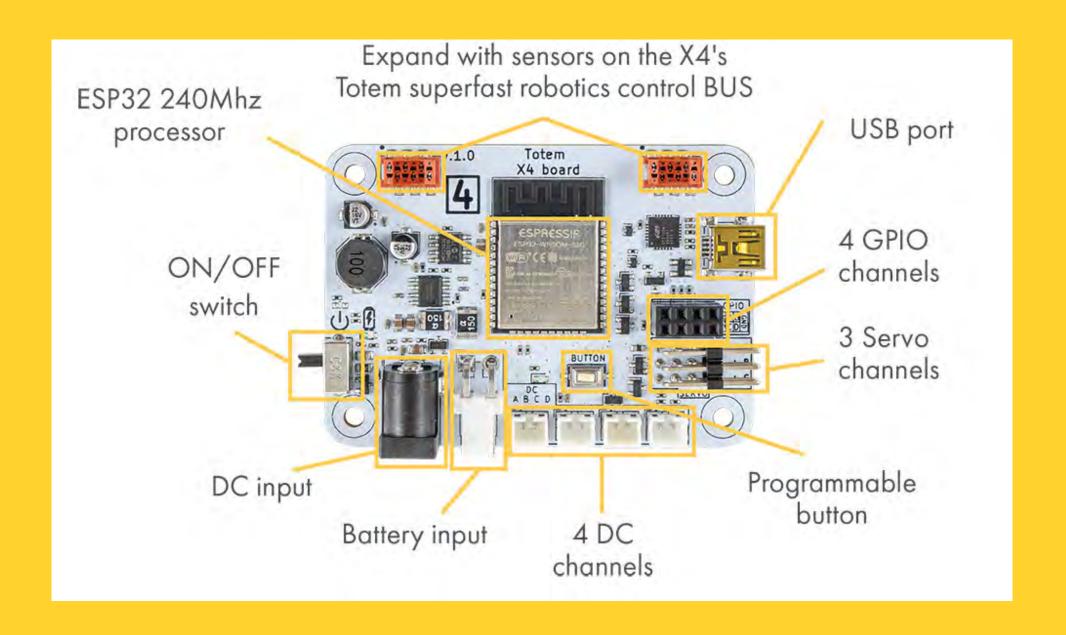
When the battery is dead, connect the power adapter to the board.





- When the LED is off, the battery is fully charged.
- When the LED is on, the battery is charging.
- When the LED is blinking, the battery is not connected.

## **ROBOBOARD X4**





Do not give this product to children aged 8 or below. As with all electronic products, precautions should be observed during handling and use to prevent electric shock.

Adult supervision required.

#### **CONSUMER INFORMATION**

Note to adults: this is not a toy.

#### **SAFETY WARNINGS:**

- · Do not pickup Black Spider while in motion.
- · Keep fingers, hair, and loose clothing away from rotating legs, to avoid the injury.
- · Adult supervision is required when this product is being operated.
- · If you stopped operating the product, remember to unplug the battery, to avoid accidental operation.
- · If the Black Spider is dirty, please clean it with dry and soft cloth. Do not clean electronics.
- · Do not expose the product to high temperature, high humidity, or direct sunlight.
- · Indoor use only. Do not put this product in water to avoid damaging its electronic components.
- The product is made of complex electronic circuit and electronic components, do not disassemble, or modify the circuit board.

#### **BATTERY SAFETY INFORMATION:**

- This Black Spider is designed to work with provided Totem Battery (3S Li-Ion 11.1V 2200mAh battery with JST-VH connector) and provided Totem power adapter (30W, 15V, 2A, 5.5/2.0 mm center-positive connector DC adapter).
- · Rechargeable battery must be charged by adult only.
- · Do not leave charging without supervision of adult.
- · There is a risk of fire and personal injury if battery is punctured, damaged or misused.
- · Do not disassemble or damage the battery pack.
- · Use only the supplied battery. Using any other battery may damage the model.
- · Use only the included power adapter to charge the battery.
- Please check on a regular basis the wire, plug, battery, charger, and other electronic parts on the product. If any damage is found, please stop using the product immediately.
- · Never throw batteries into fire to avoid explosion or leakage.
- · Check the batteries on regular basis to avoid leakage.
- · Recycle or dispose of batteries according to local laws and guidelines.

KEEP THIS INSTRUCTION MANUAL AND THE PRODUCT BOX AS IT CONTAIN IMPORTANT INFORMATION FOR FUTURE REFERENCE.

#### **BATTERY CHARGING:**

Rechargeable battery must be charged by adult only.

- The new battery pack needs to be charged before use.
- · Connect the power adapter to power source.
- The charger will show a red LED light when charging the battery. When the battery is fully charged, the red LED light turns off.

Due to the continuous product improvement, the pictures on this manual may differ slightly from the actual product. Please adhere to actual product instead.

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