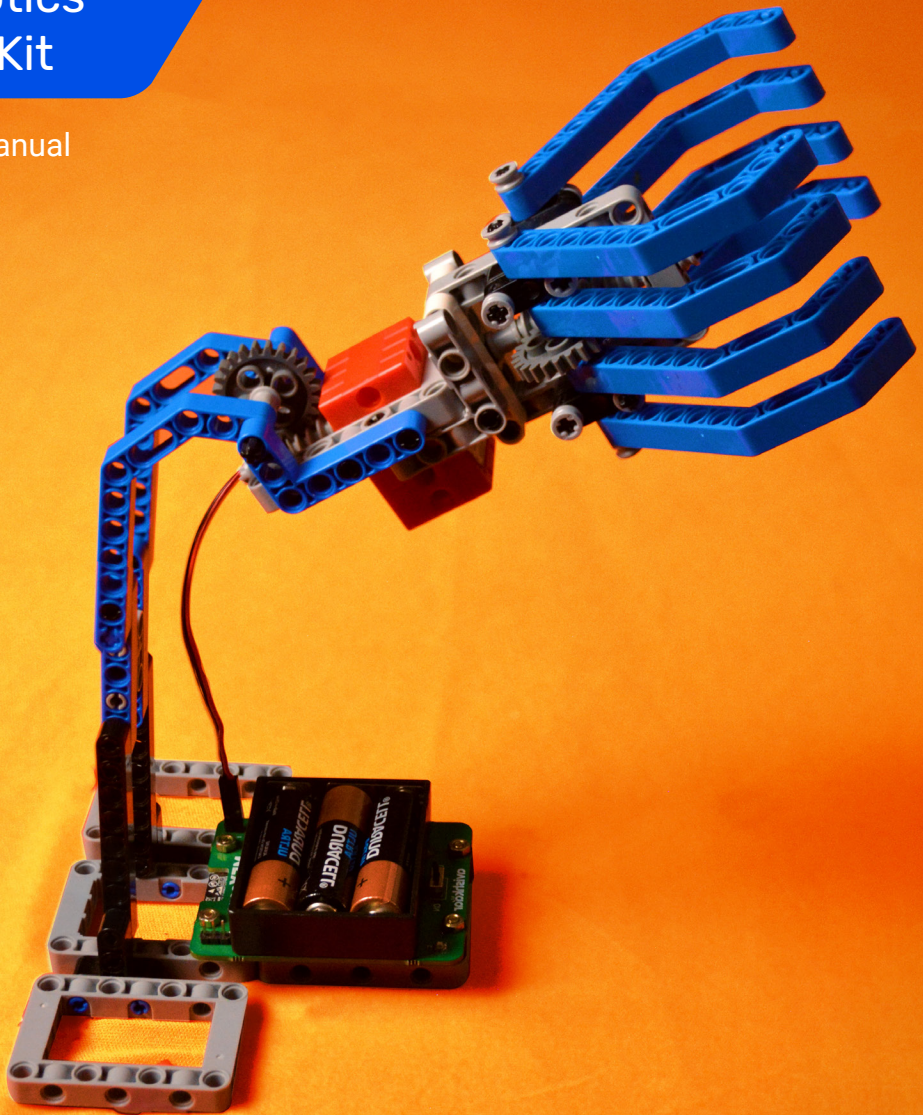


avishkar

# MEX

Robotics  
Arm Kit

User Manual





**"I don't dream  
of success, I work  
towards it!"**

# Sneak peak

Make the most out of your kit .....	04
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# Make the Most Out of Your Kit

## Innovate



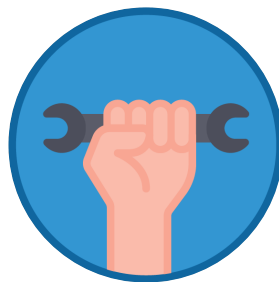
### Take the Innovator's Oath

Take the innovator's oath mentioned on page 6 and understand what it means to be an innovator.



### Learn using Manual/Videos

Follow detailed instructions in the manual and learn how to build exciting robots with your kit.



### Build, Code & Control

Build innovative projects using your kit, and control the Robots using Avishkaar Remote and Code using Avishkaar Maker Studio.





### **Join Let's Avishkaar**

Join our FB community - connect with innovators and get latest updates on webinars.



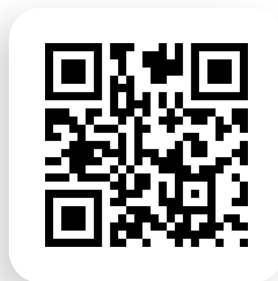
### **Upload Projects**

Upload projects on [www.avishkaar.cc](http://www.avishkaar.cc) and share them with innovators globally.



### **International Competitions**

Participate in weekly, monthly and annual competitions and win glory globally.



# Innovator's Oath

Take the Innovator's Oath below to pledge yourself to lifelong commitment towards Innovation and Problem Solving. Share a photo on the Let's Avishkaar FB Community.

*I* (write your name) \_\_\_\_\_

*solemnly swear that, since I am  
now on the path of innovation,  
I will not give up until my  
innovation, my project is ready.  
I will hone my skills and tools  
and use them well. Innovation  
and I will be inseparable.  
I will always share my  
innovations with other  
innovators and learn with them.*

*Your Signature*

# Welcome to Avishkaar

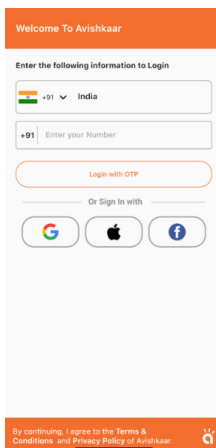
## Download the Avishkaar App

Download the Avishkaar App by scanning the QR codes below:



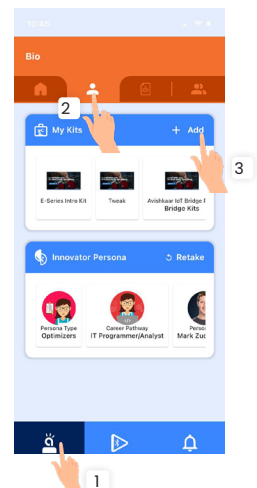
### 1 Create an Account

Open the app and follow the on-screen steps to make an account.



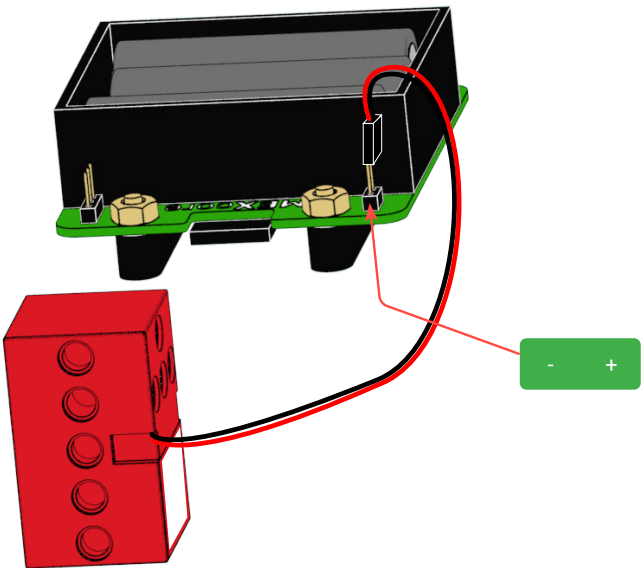
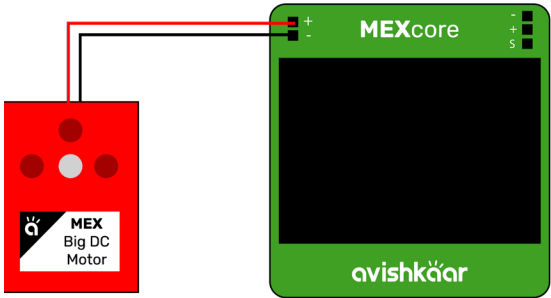
### 2 Register your Kit

Go to the 'Profile' section in the app and click on '+ Add More' in the 'My Kits' section to register your kit. This step is important to control your robot later.



Product Registration  
Sticker

# How to connect the motor to MEXcore

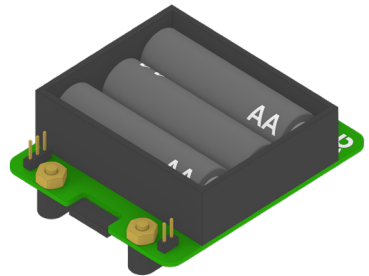




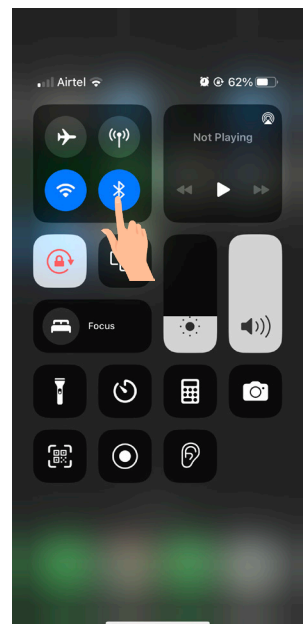
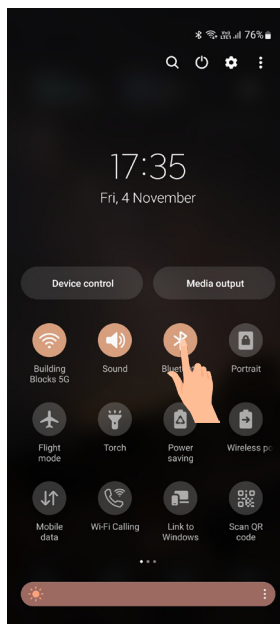
## App Control

- 1 Insert the batteries in the MEXcore and turn it ON. You will notice the MEXcore LED blinking in green color.

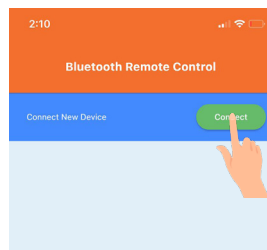
Note - Use AA alkaline cells only. (Any other type of cells can damage the MEXcore.)



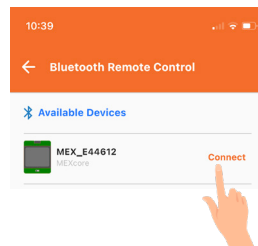
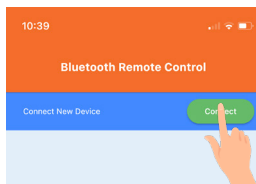
- 2 Turn ON the bluetooth on your phone.



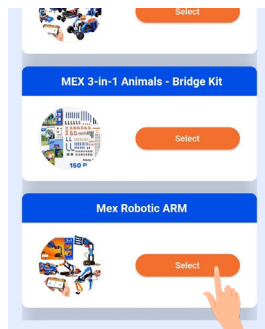
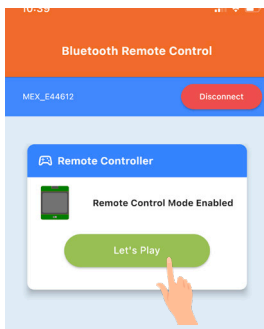
- 3 Open the Avishkaar App and click on the 'Play' button inside the 'Home' section.



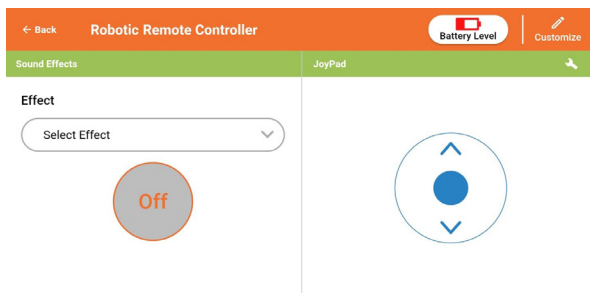
- 4 Click on 'Connect'. Your app should be able to find your MEXcore if it is turned ON. Click on 'Connect' once your app detects your MEXcore.



- 5 Click on 'Let's Play' and select 'MEX Robotics Arm kit' in the kit selection menu.



- 6 The remote control screen will open up which will allow you to control Motor.

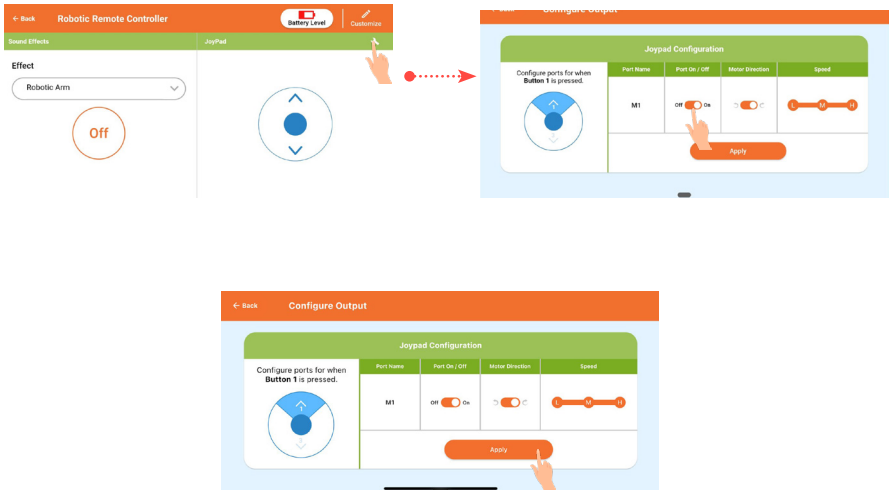


# Configure

## Sound effects

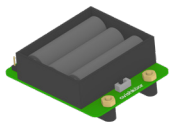


## Joystick



# Armour Check

## Box 1 (Electronics)



Avishkaar  
MEXCore  
x 1



MEX big DC  
motor  
x 1

## Box 2 (Construction parts )

### BEAM



15H Beam  
x 1



13H Beam  
x 1



11H Beam  
x 1



3H Beam  
x 4



9H Beam  
x 2



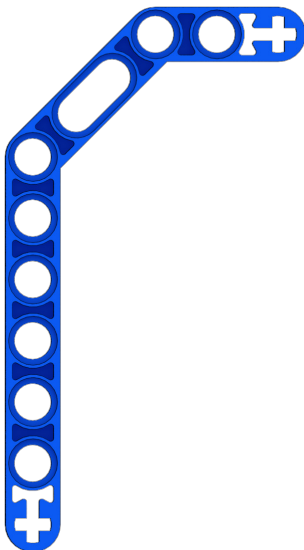
5H Beam  
x 2



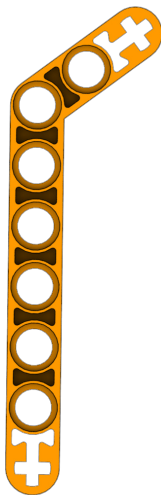
7H Beam  
x 4

**Note:** 'H' stands for holes. Eg. 15H beam means beam with 15 holes.

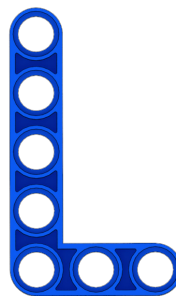




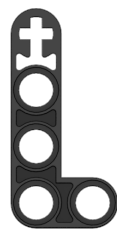
2Cx10H Double  
Bend Beam  
x 10



2C x7H Single Bend  
x 2



7H L-Beam  
x 5



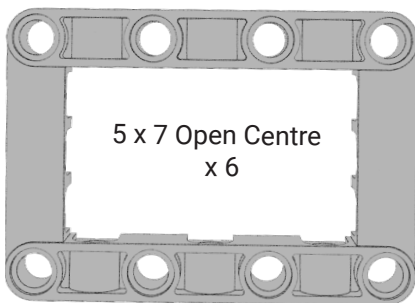
1Cx4H L-Beam  
x 3



2Cx1H  
Thin-Beam  
x 1



5H T-Beam  
x 2



5 x 7 Open Centre  
x 6

### FILLERS

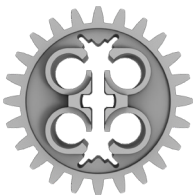


Axle Filler- Big  
x 16



Axle Filler- Small  
x 16

### GEAR



Spur Gear-24T  
x 3



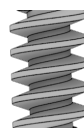
Spur  
Gear-16T  
x 2



12T Double  
Bevel gear  
x 2

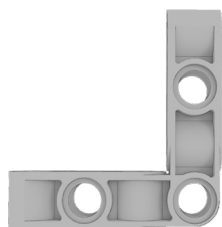


20T Double  
Bevel gear  
x 1

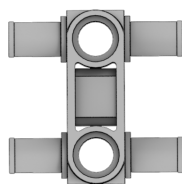


Worm Gear-Big  
x 3

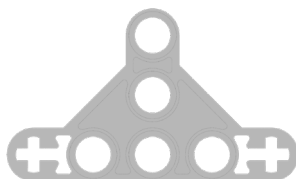
## CONNECTORS



4 x 4 Perpendicular L  
connector  
x 2



3Hx4 Pin  
Connector  
x 1



2C x 5H Triangle  
x 2



1C x 1H  
Perpendicular  
Connector  
x 2



Axle Triple Pin  
Perpendicular Connector  
x 1



Axle Angle  
Connector-180  
x 2



Axle Angle  
Connector -135  
x 2



2C x 1H  
Perpendicular  
x 4

## PINS



Long Pin-Blue  
x 13



Long Pin-Yellow  
x 1



Medium Pin-Black  
x 22



Medium Pin-Grey  
x 2



Medium Axle  
Pin-Blue  
x 2

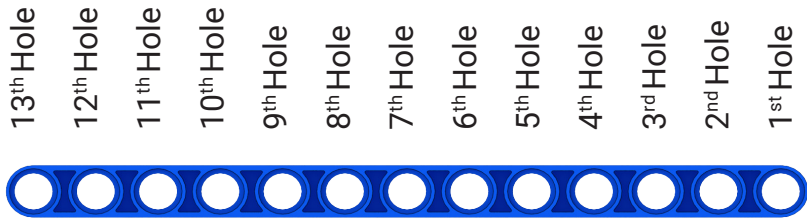


Short Pin-Yellow  
x 2

**Note:** 'Note: 'C' stands for 'Cross'. Eg - '1CX4H L-Beam' has one cross and four holes.

# All About Axles

NOTE : The axles are in 1:1 with the imprinted slots ( **XH Axle** ) in manual.

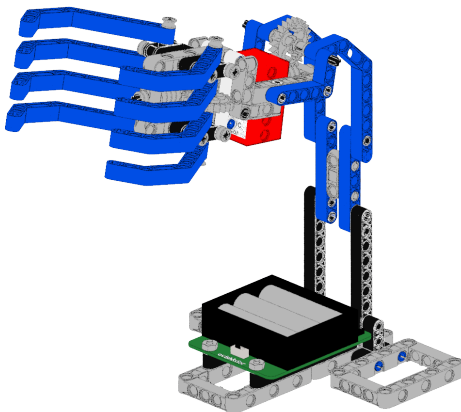


1:1

3H Axle (3)	4H Axle (2)	5H Axle (1)	5H capped Axle (2)	6H Axle (4)	7H Axle (1)	8H Axle (3)	10H Axle (1)	13H Beam
-------------	-------------	-------------	--------------------	-------------	-------------	-------------	--------------	----------

# Project 1: MEX Grabber

## Let's Build!



## Things we need



9H Beam  
x 2



7H Beam  
x 2



5H Beam  
x 2



7H L-Beam  
x 2



3H Beam  
x 4



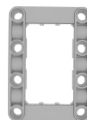
2Cx10H  
Double Bend  
Beam  
x 10



5H T-Beam  
x 2



4 x 4 Perpendicular  
L Connector x 2



Open centre  
x 6



10H Axle  
x 1

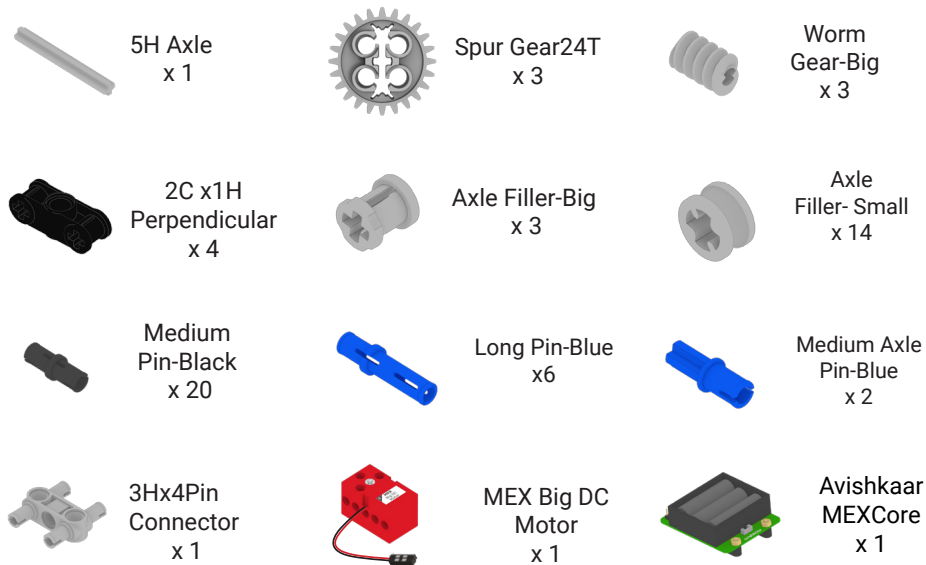


8H Axle  
x 3



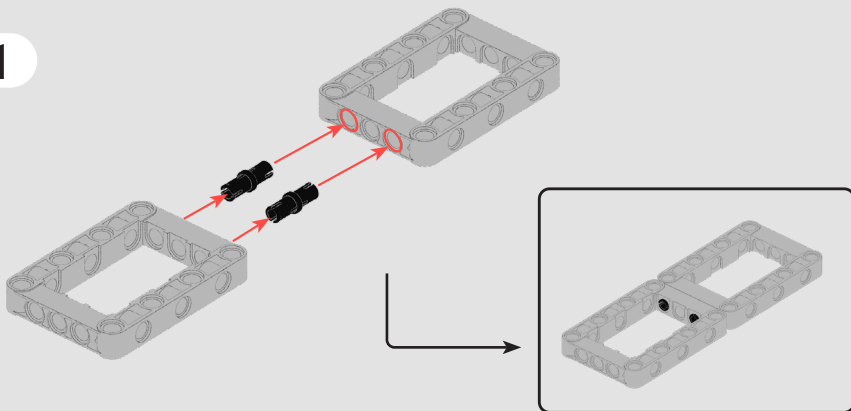
6H Axle  
x 4





## Steps

1



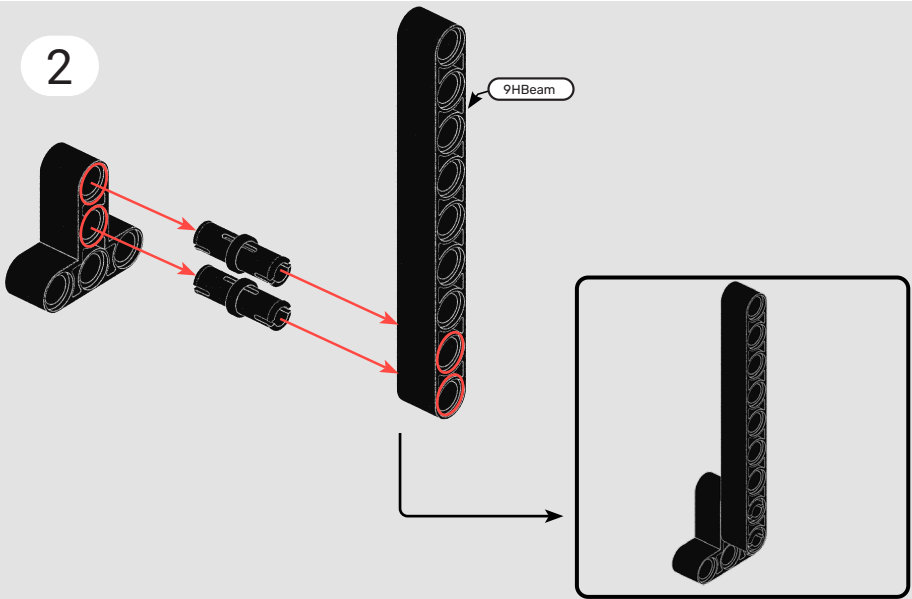
### Build Tip



**Black Medium Pins** can be a little tough to insert!  
But don't worry. Push it through and make sure the joint is firm. They can take a little force. :)

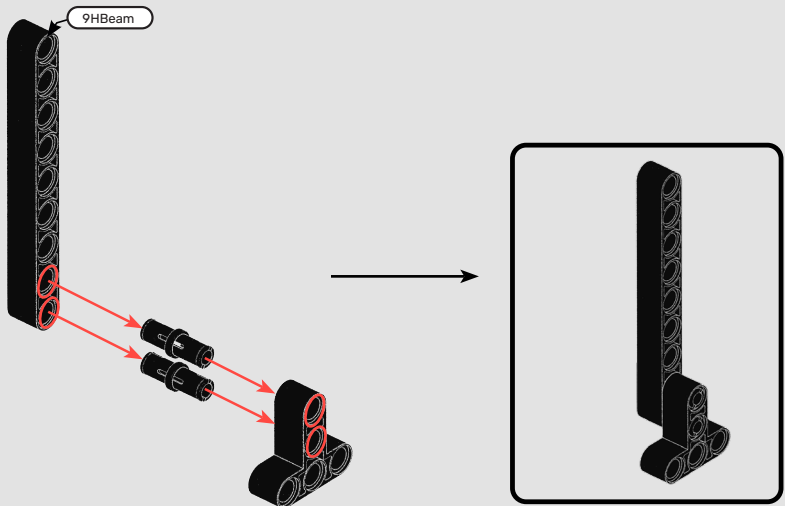


2

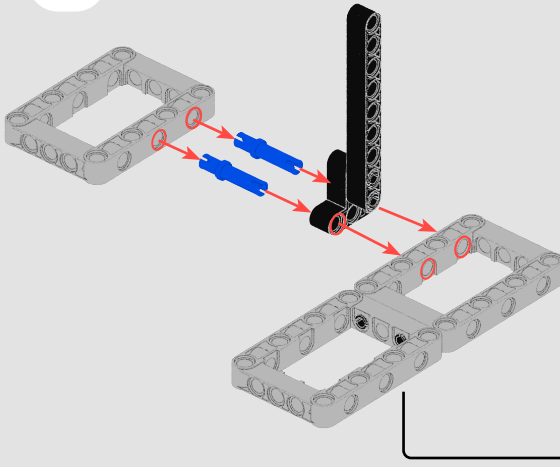


3

Let's make the another side.



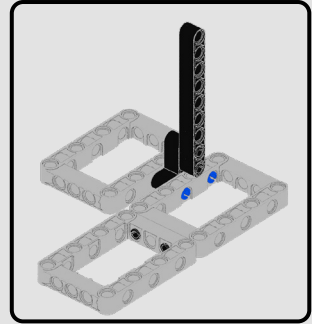
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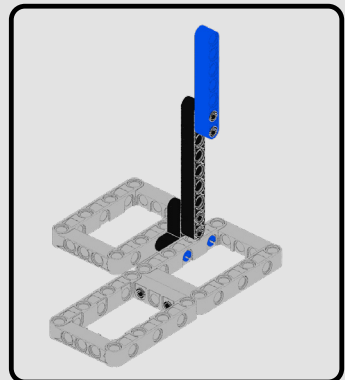
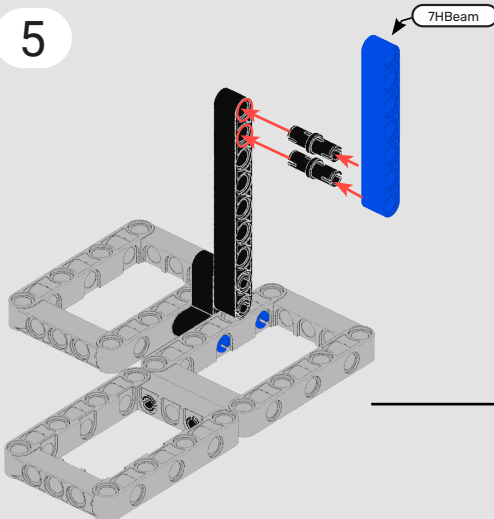
1:1



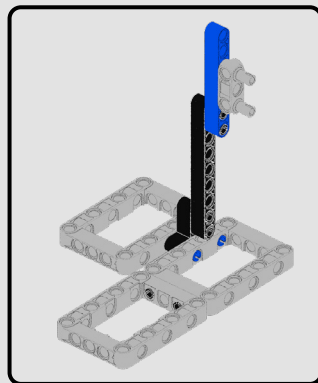
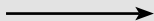
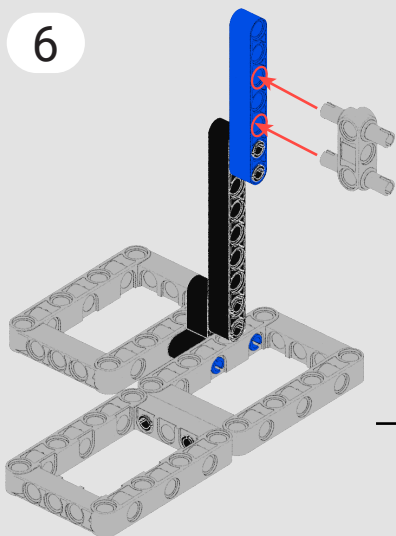
Long Pin Blue



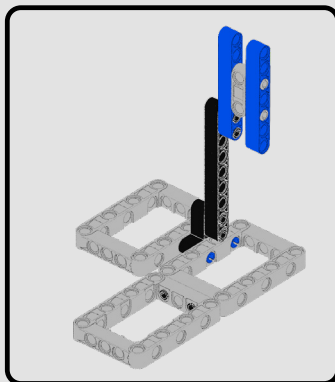
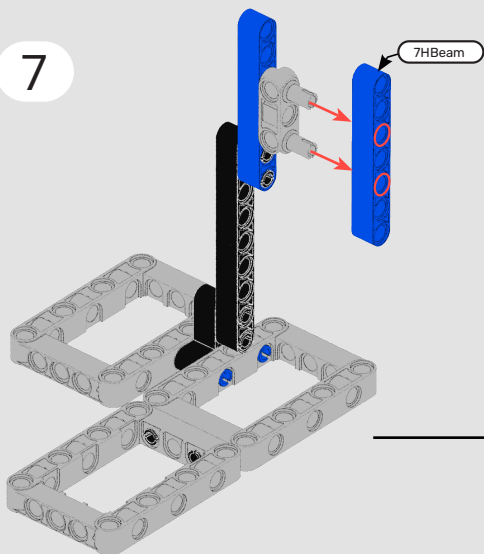
5



6

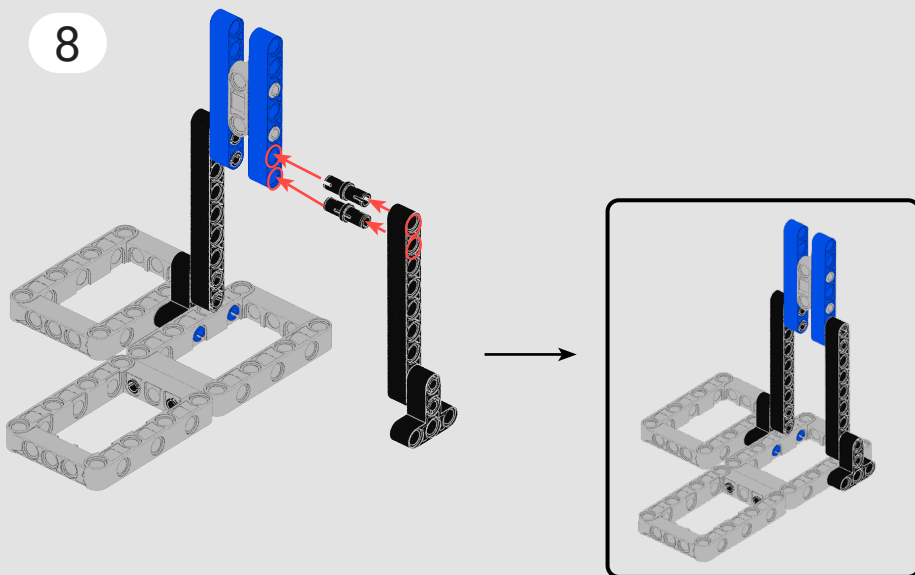


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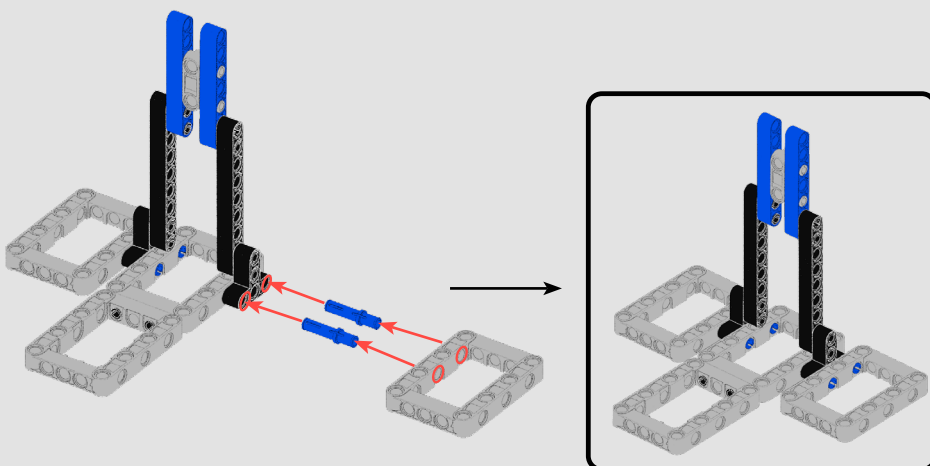


8



9

1:1

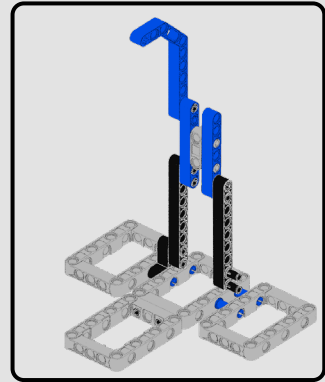
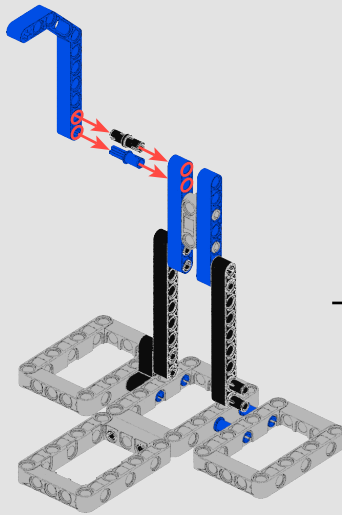


10

1:1



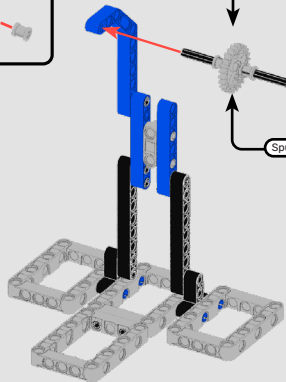
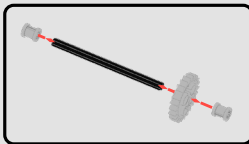
Medium Axle Pin Blue



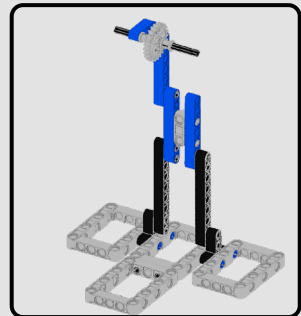
11

1:1

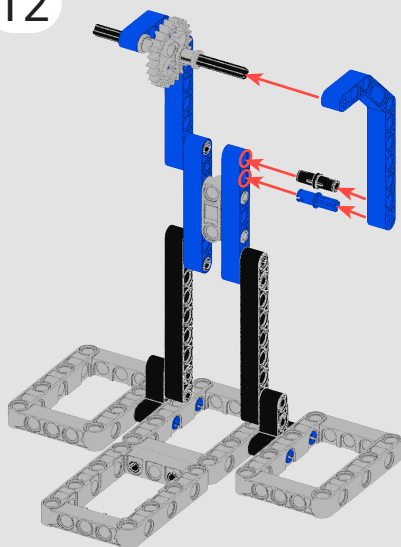
8H Axle



Spur 24T spur gear



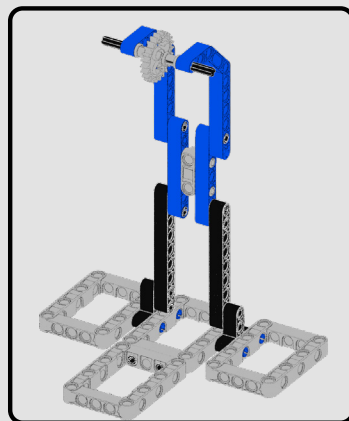
12



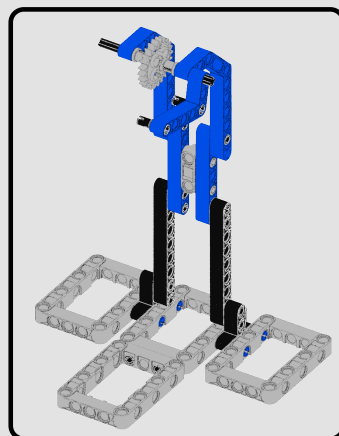
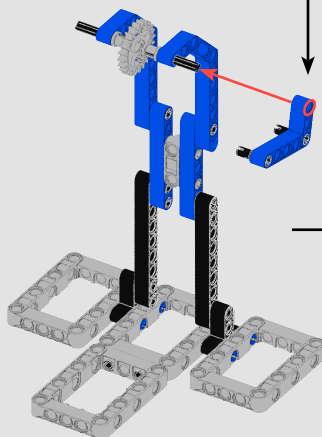
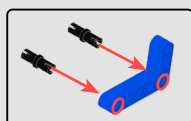
1:1



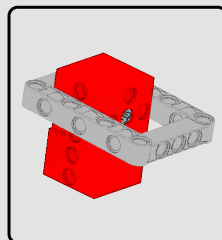
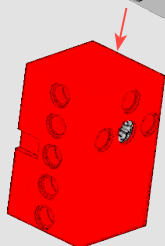
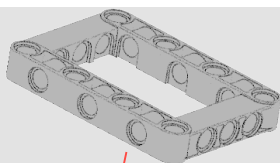
Medium Axle Pin Blue



13



14



### Build Tip



**Black Medium Pins can only be inserted on one side of the motor!**

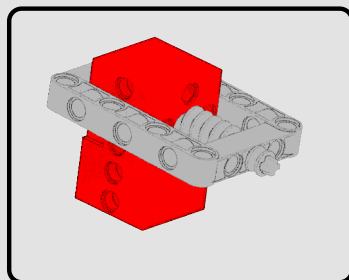
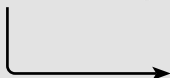
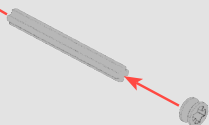
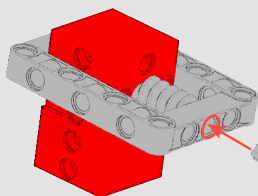
The black pins can only be inserted on the side of the motor with the white sticker. On the other side with no sticker - only small yellow pins can be used.



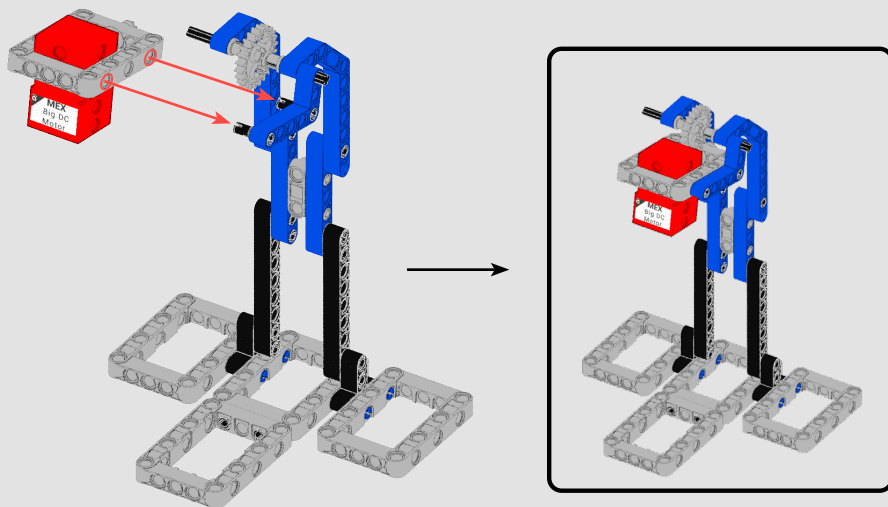
15

1:1

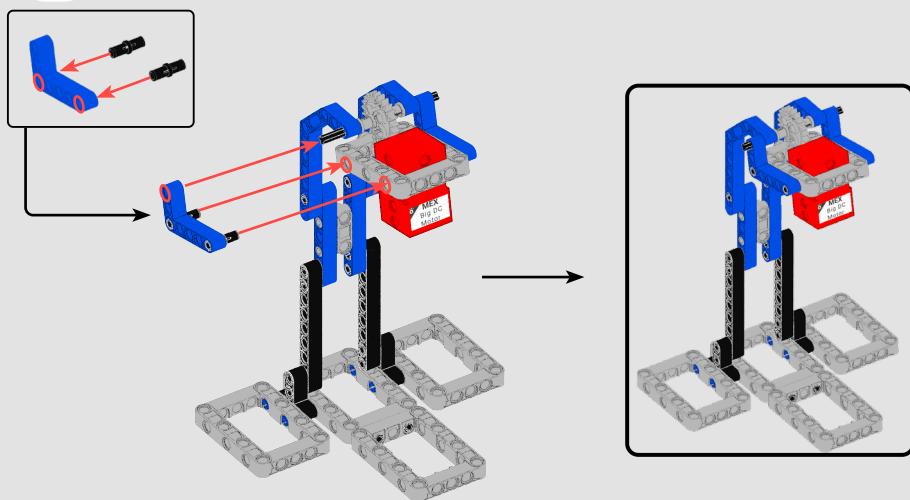
5H Axle



16



17



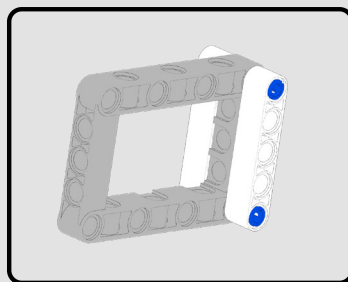
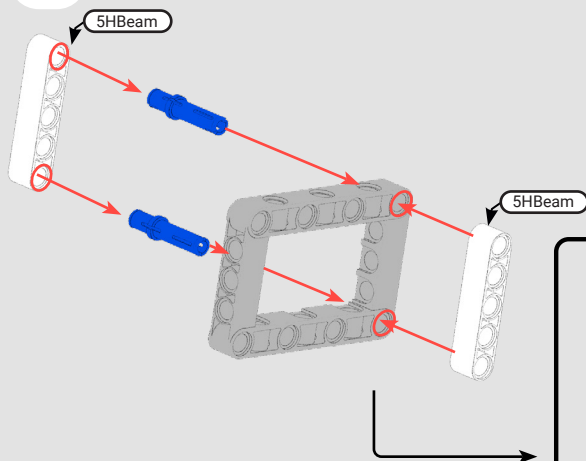
18

Let's make the Claw.

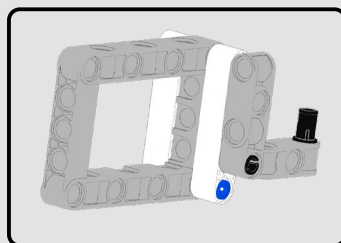
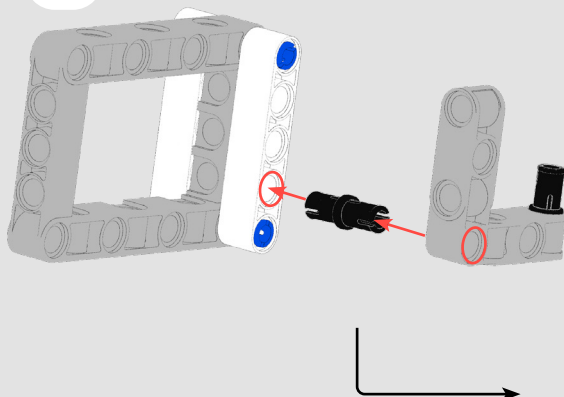
1:1



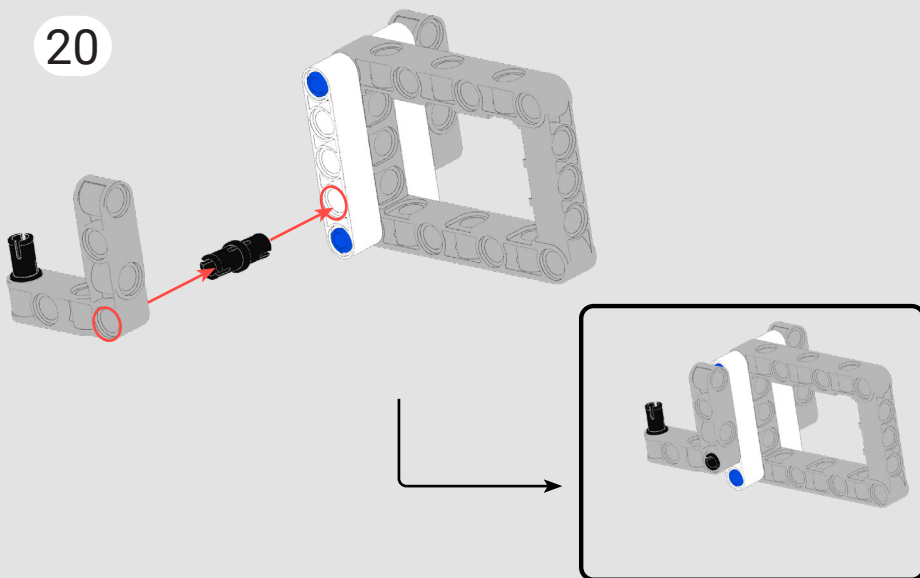
Long Pin Blue



19



20

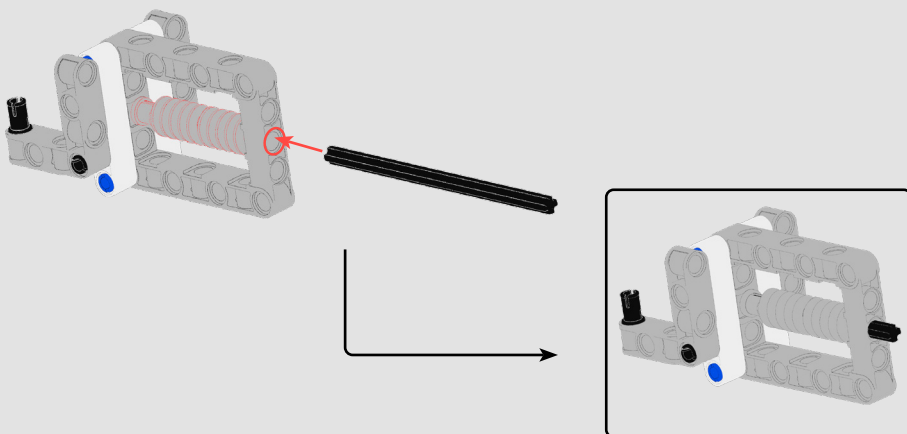


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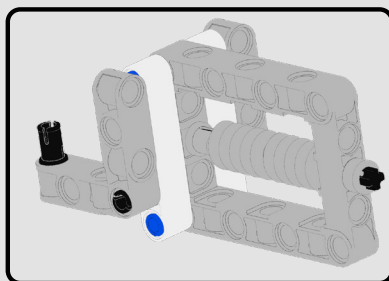
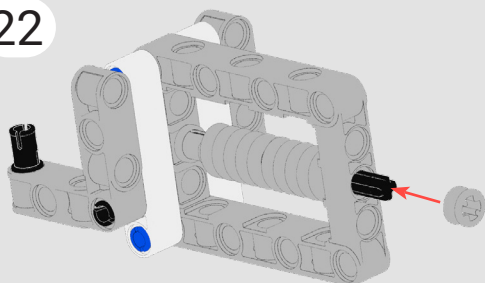
10H Axle

21

Note: using two Worm Gear-Big.



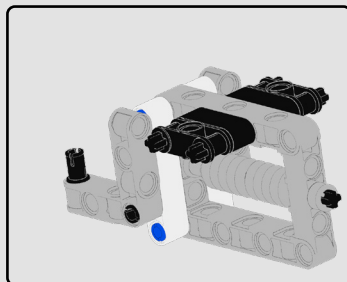
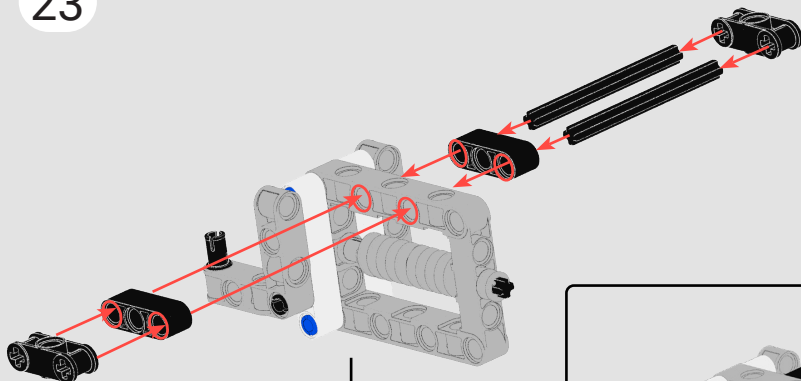
22



23

1:1

6H Axle

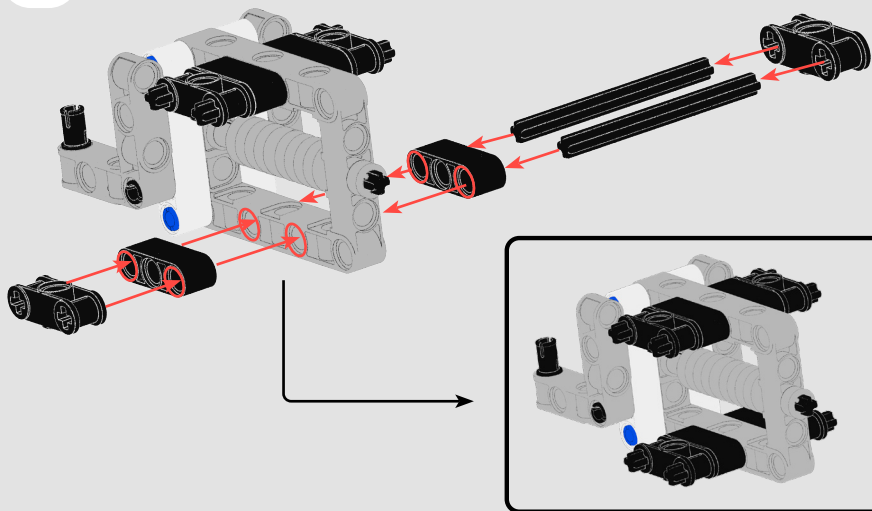




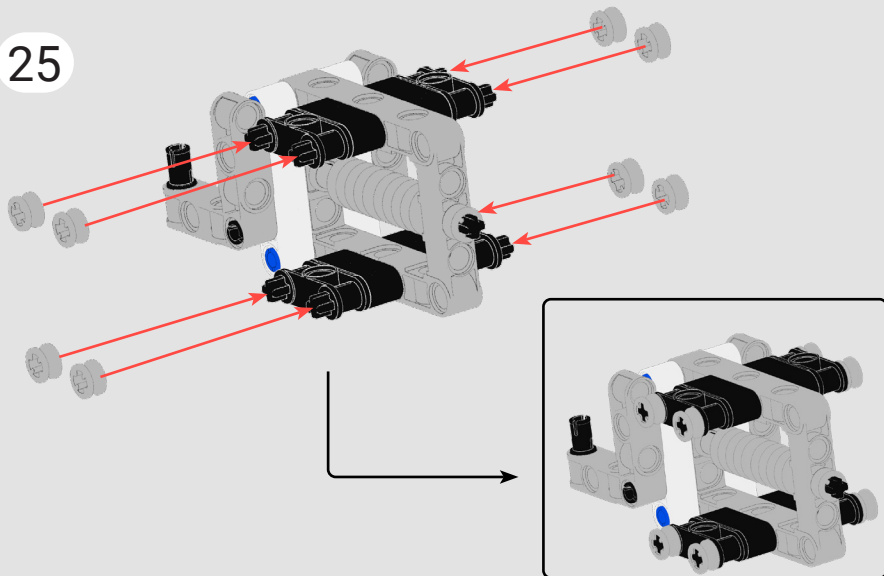
24

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6H Axle



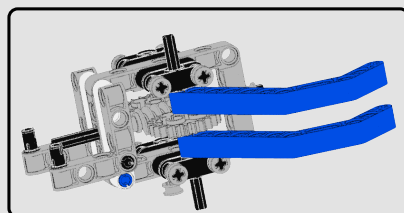
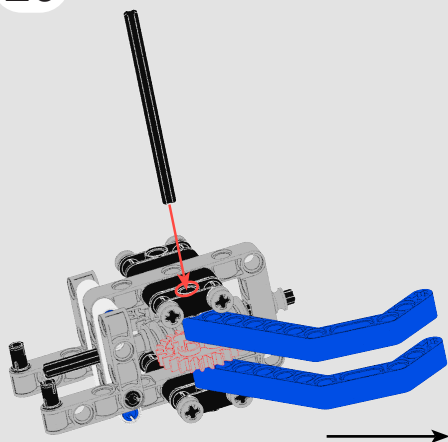
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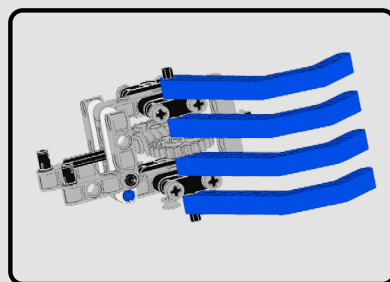
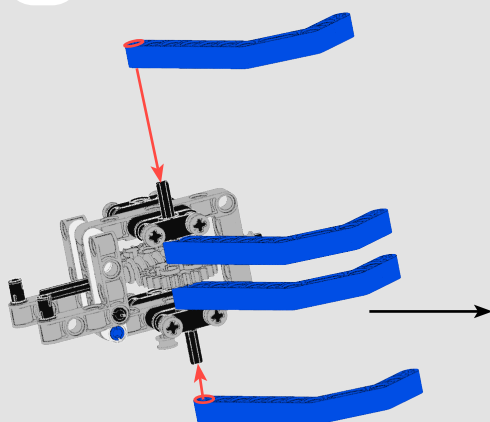
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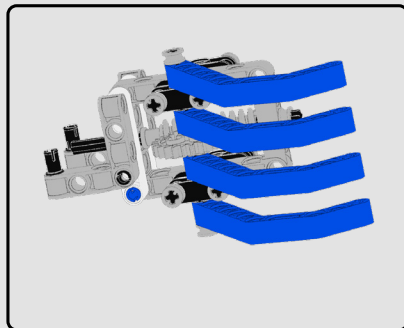
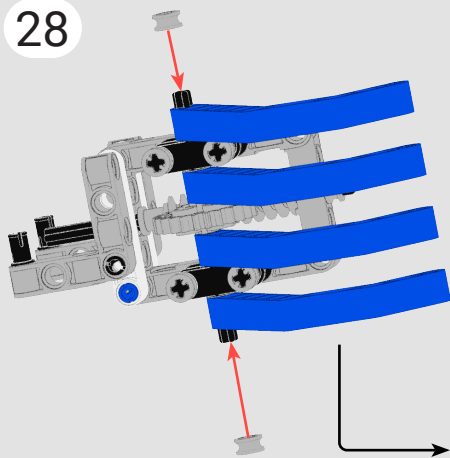
8H Axle



27



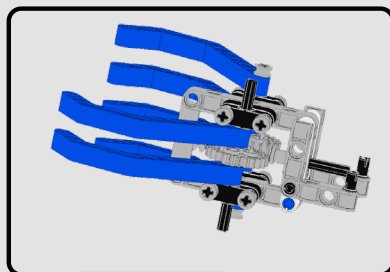
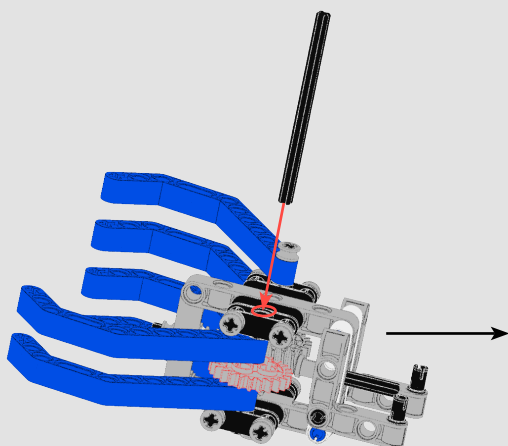
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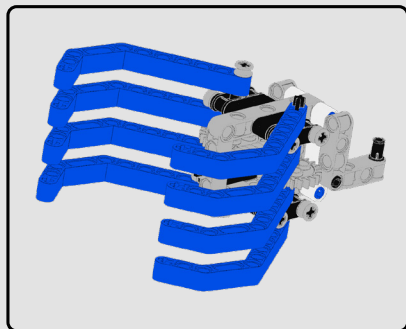
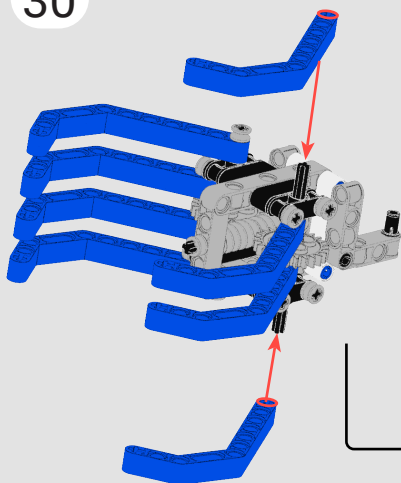
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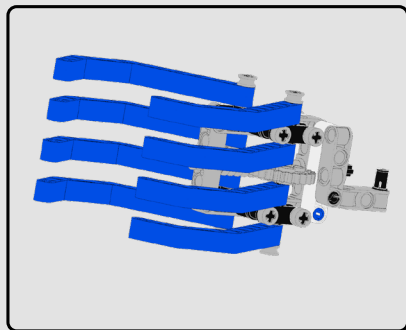
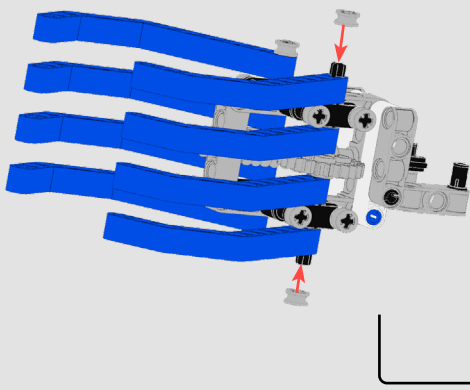
8H Axle



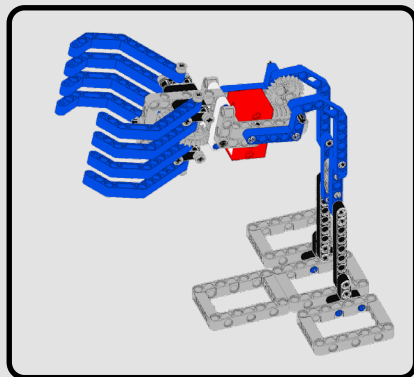
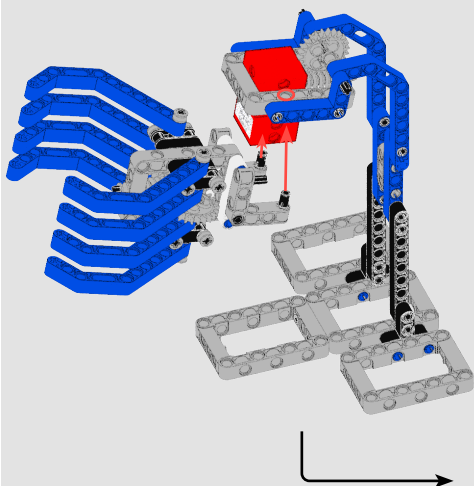
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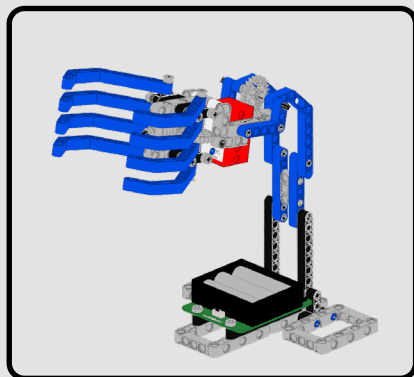
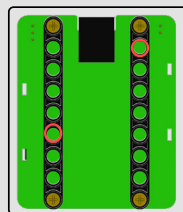
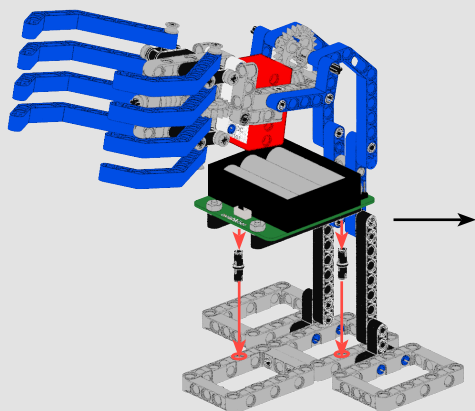
31



32



33



# Congratulations on Completing this Project!

Excited to play with it using the avishkaar mobile app?

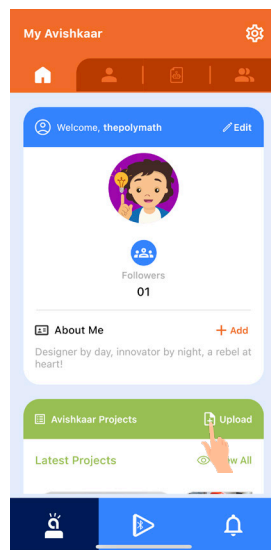
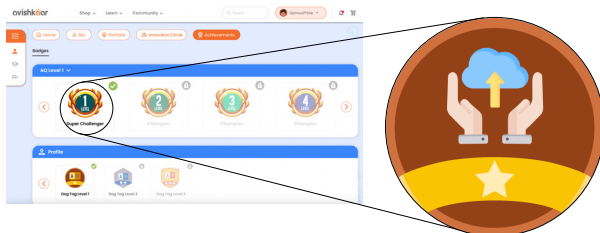
Go to Pg 8 about the detailed instructions on how to download the app and control your bot using it.



## Share your Creation with the World and Win the 'Scratch the Surface' Level 1 Badge

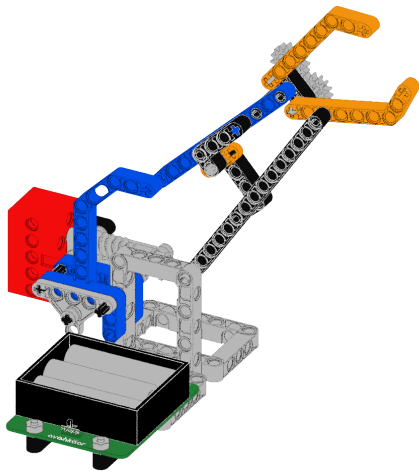
Upload photos or videos of your project using the project section of the Avishkaar App to win the 'Scratch the Surface' Level 1 Badge.

See all your collected badges in the achievement section of your profile on [www.avishkaar.cc](http://www.avishkaar.cc). Explore all other badges to be collected and win them all!



# Project 2 : MEX Cyber Claw

## Let's Build!



## Things we need



15H Beam  
x 1



11H Beam  
x 1



3H Beam  
x 1



7H L-Beam  
x 2



1Cx4H L-Beam  
x 3



2Cx10H  
Double Bend Beam  
x 1



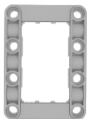
2C x 7 H  
Single Bend  
Beam  
x 2



5H T-Beam  
x 1



2Cx1H  
Thin-Beam  
x 1



Open centre  
x 3



2C x 5H  
Triangle  
x 2



Worm  
Gear-Big  
x 1



Spur Gear16T  
x 2



Spur Gear24T  
x 1



Axle Filler-Big  
x 5



Axle Filler- Small  
x 9



1Cx1H  
Perpendicular  
Connector  
x 2



3H Axle  
x3



7H Axle  
x 1



8H Axle  
x 3



Medium  
Pin-Black  
x9



Medium  
Pin-Grey  
x 1



Medium Axle  
Pin-Blue  
x 2



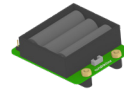
Shot pin yellow  
x 1



Long Pin-Blue  
x3



MEX Big DC  
Motor  
x 1



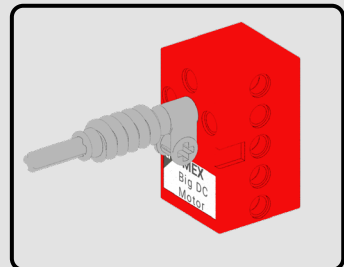
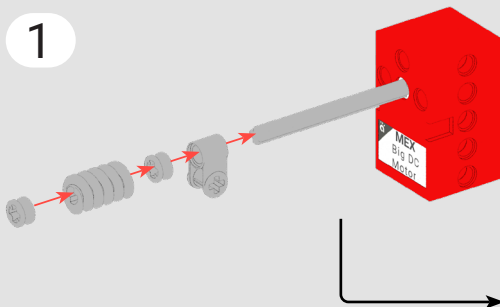
Avishkaar  
MEXCore  
x 1

## Steps

1:1

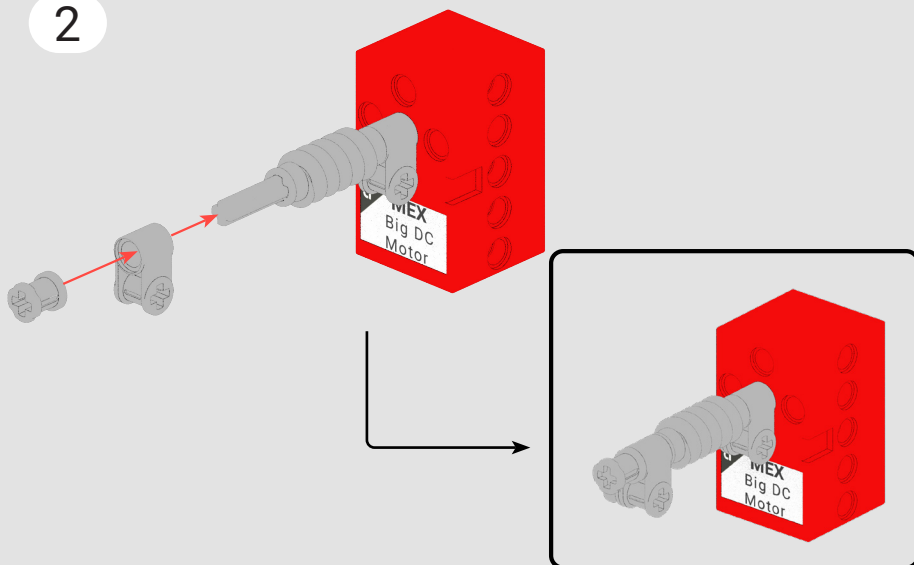
7H Axle

1





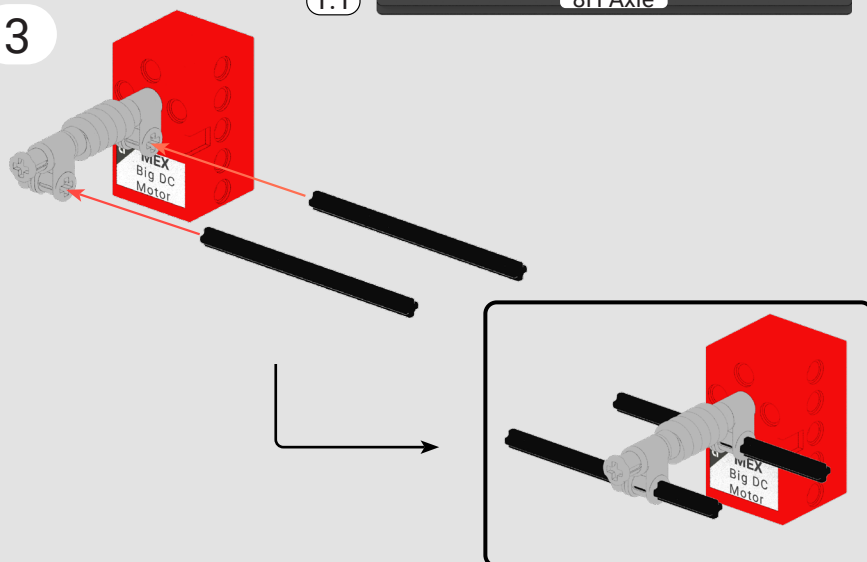
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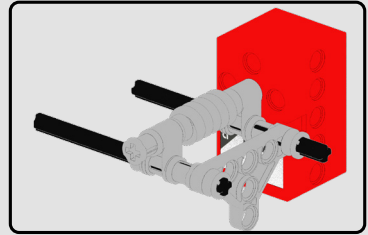
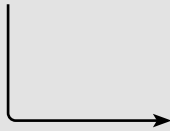
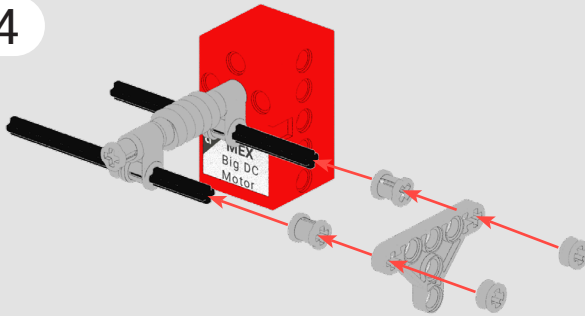
3

1:1

8H Axle



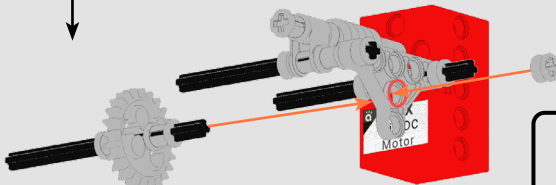
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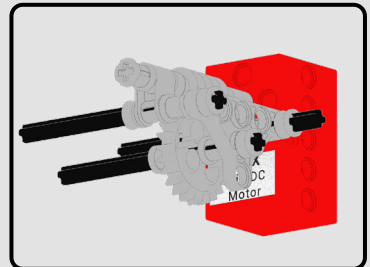
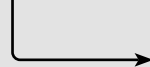
5

1:1

8H Axle



Spur 24T spur gear

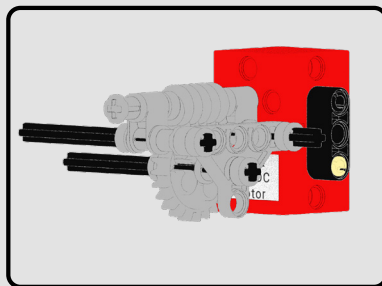
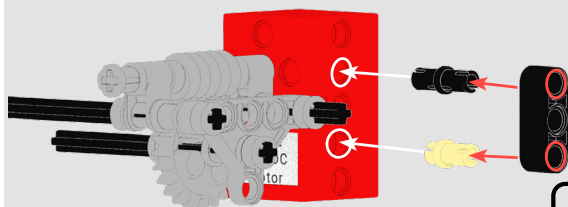


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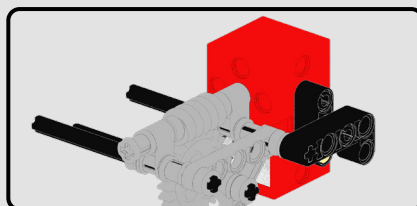
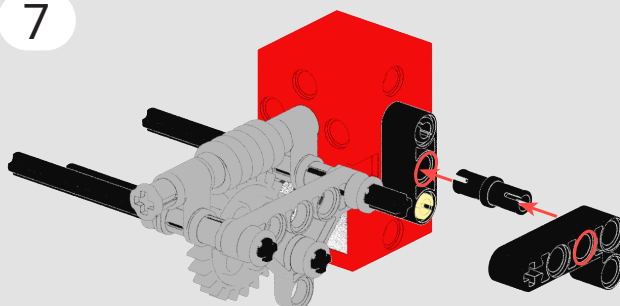
1:1



Short Pin Yellow



7



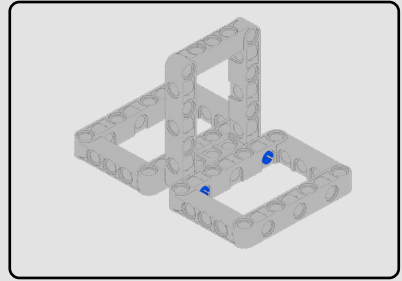
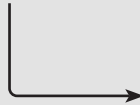
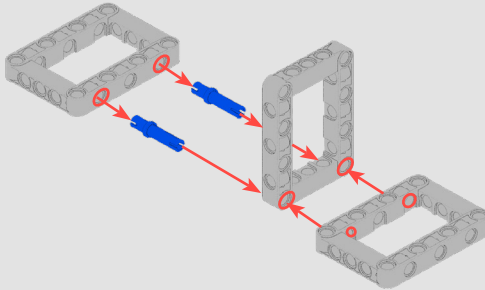
8

Let's make the base structure.

1:1



Long Pin Blue

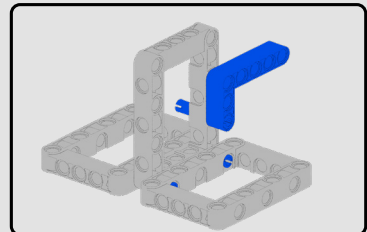
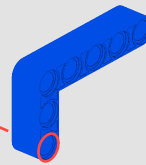
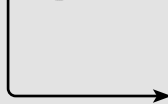
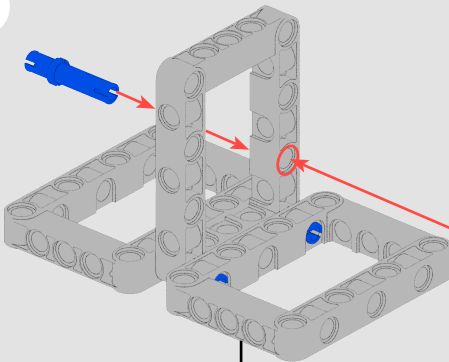


9

1:1

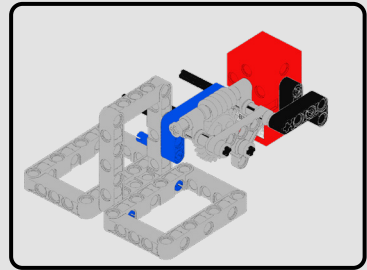
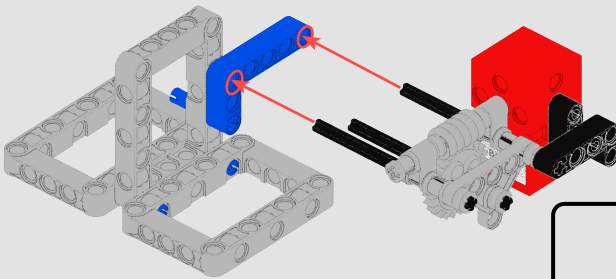


Long Pin Blue

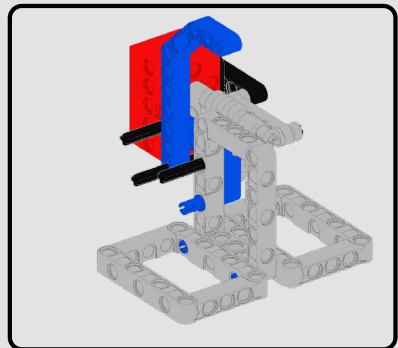
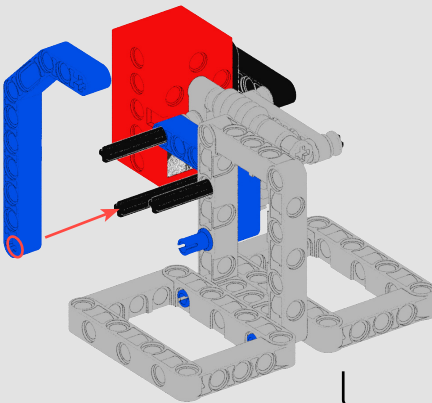


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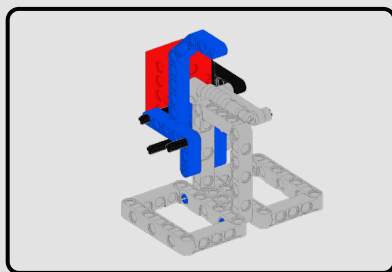
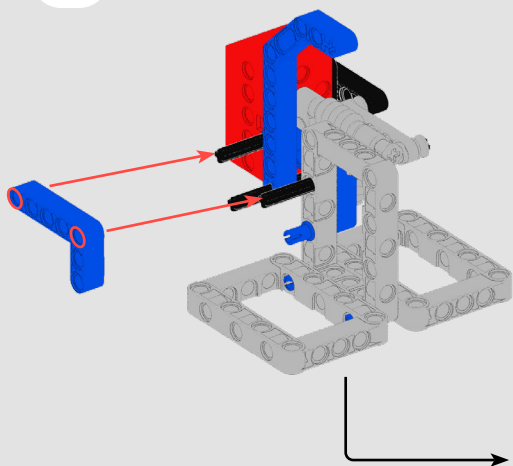
Let's Assemble the base structure and motor mechanism.



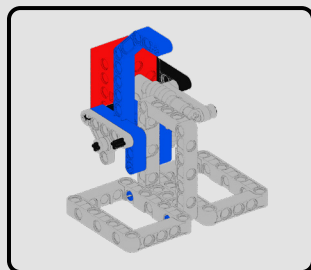
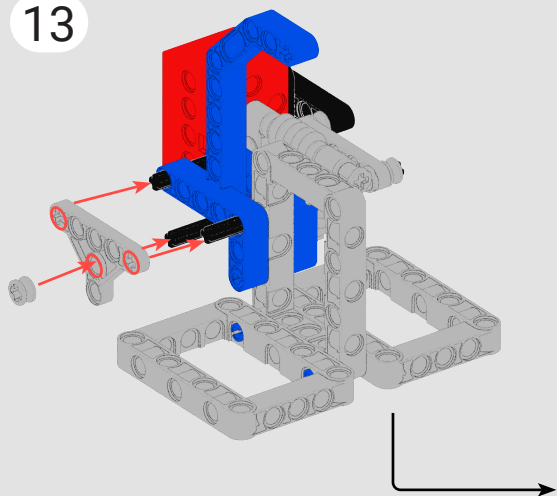
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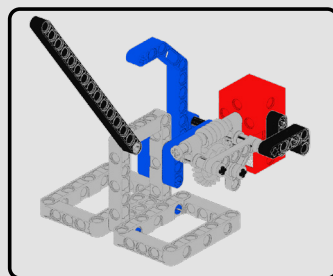
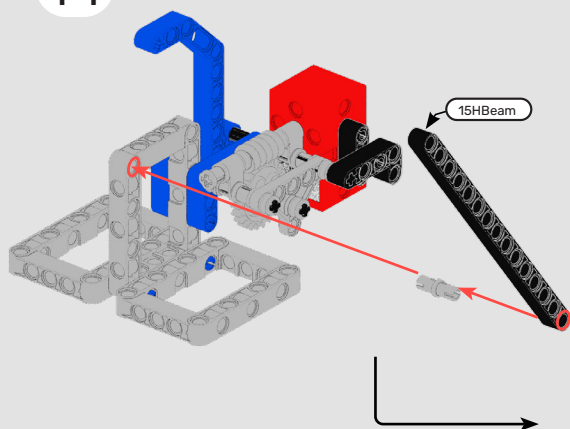
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13



14

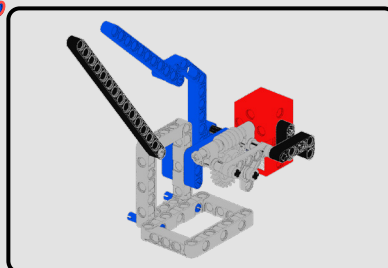
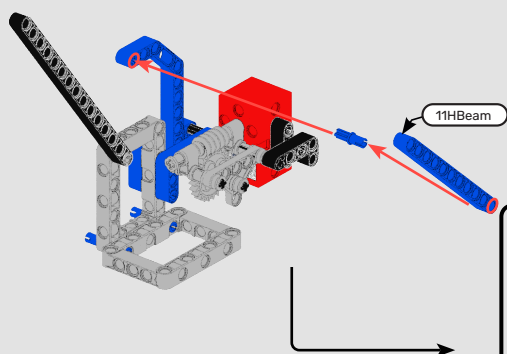


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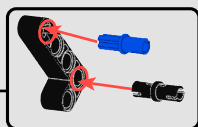
1:1



Medium Axle Pin Blue



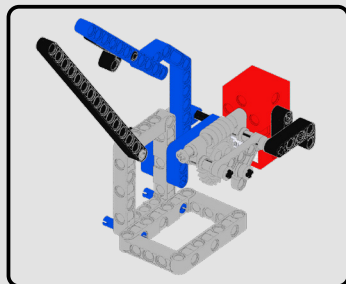
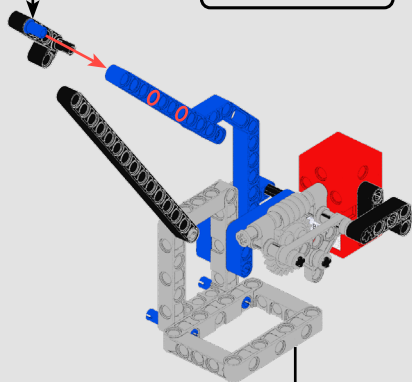
16



1:1



Medium Axle Pin Blue

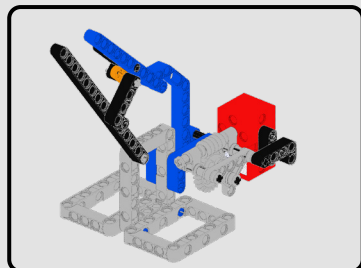
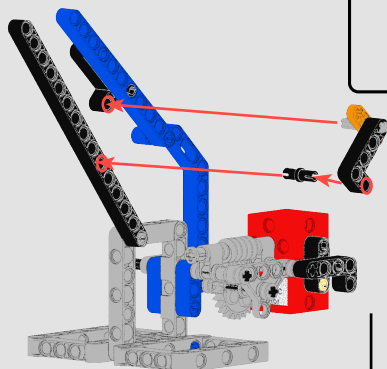
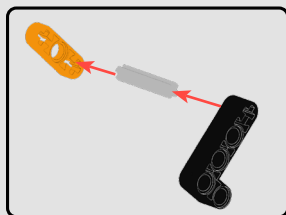


17

1:1

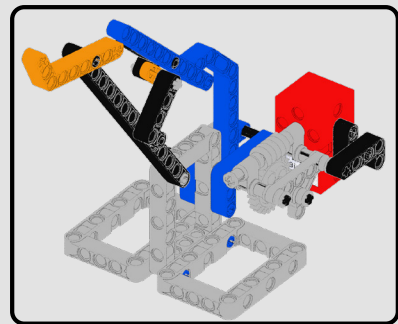
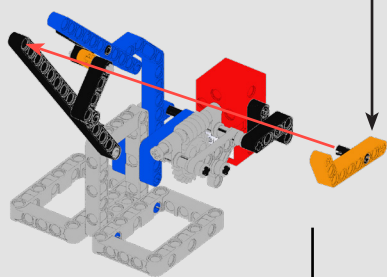
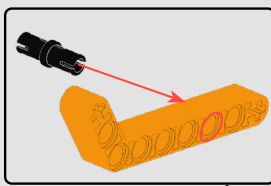


3H Axle

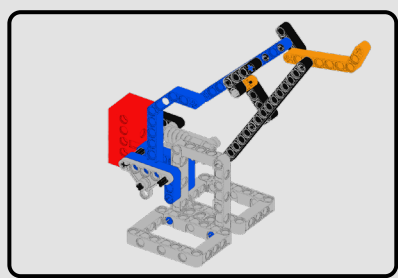
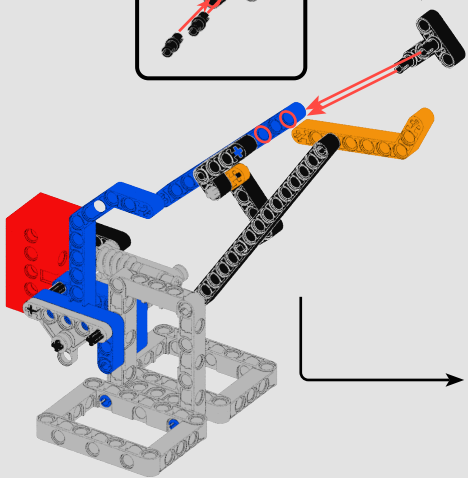




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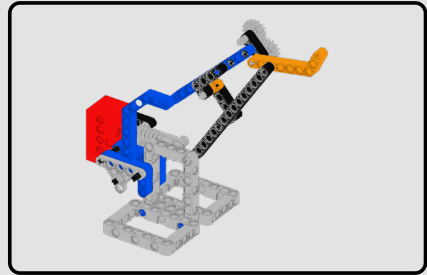
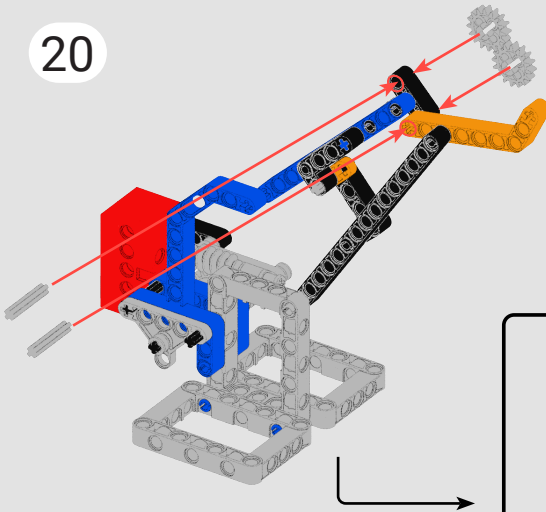
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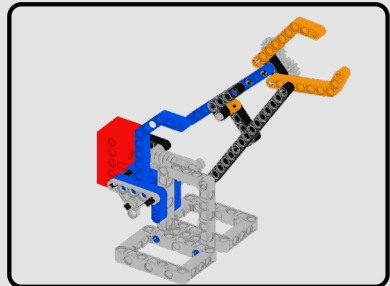
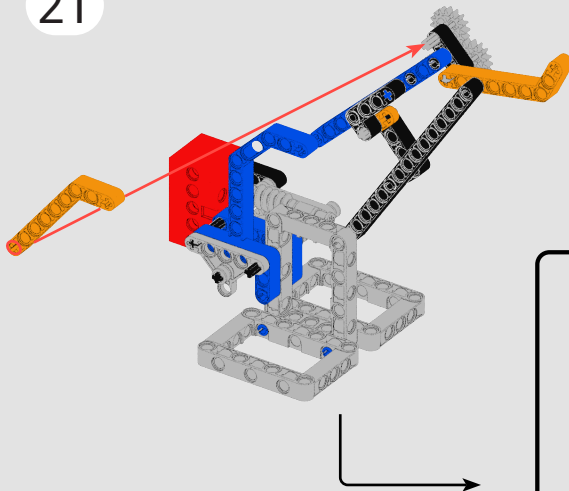
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1:1

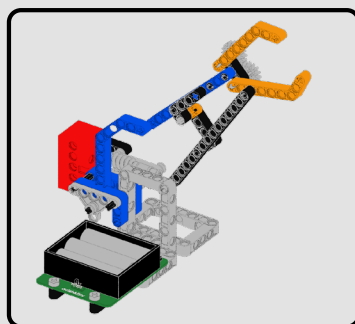
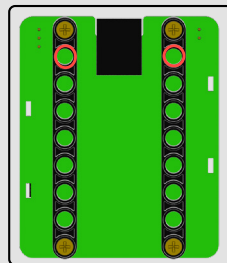
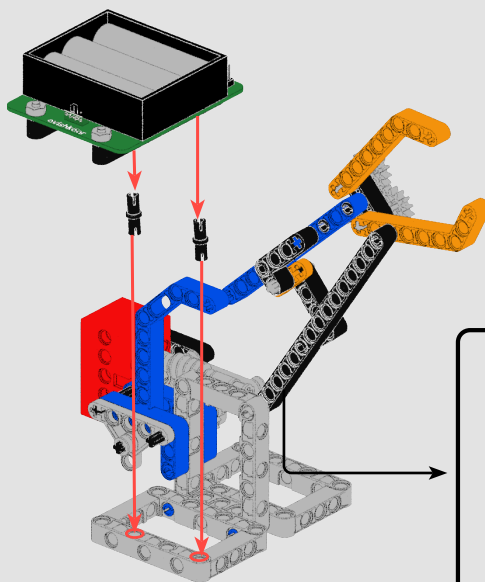
3H Axle



21



22



# Congratulations on Completing this Project!

Excited to play with it using the avishkaar mobile app?

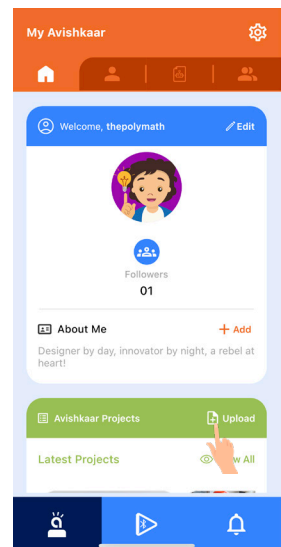
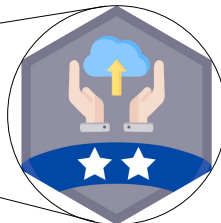
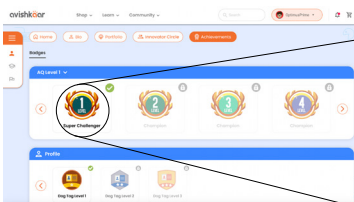
Go to Pg 8 about the detailed instructions on how to download the app and control your bot using it.



## Share your Creation with the World and Win the 'Scratch the Surface' Level 2 Badge

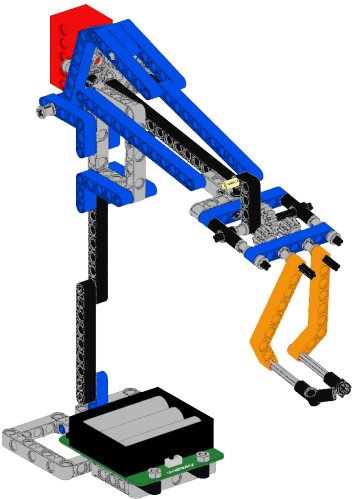
Upload photos or videos of your project using the project section of the Avishkaar App to progress towards winning the 'Scratch the Surface' Level 2 Badge.

See all your collected badges in the achievement section of your profile on [www.avishkaar.cc](http://www.avishkaar.cc). Explore all other badges to be collected and win them all!



# Project 3: MEX Robo Lift

## Let's Build!



## Things we need



15H Beam  
x 1



13H Beam  
x 1



11H Beam  
x 1



9H Beam  
x 2



7H Beam  
x 4



7H L-Beam  
x 5



1Cx4H L-Beam  
x 1



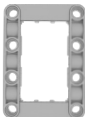
2C x 10 H  
Double Bend  
Beam  
x 1



2C x 7 H  
Single Bend  
Beam  
x 2



4 x 4 Perpendicular  
L Connector x 1



Open centre  
x 4



2C x 5H  
Triangle  
x 2



Worm  
Gear-Big  
x 1



12T Double  
Bevel gear  
x 2



20T Double  
Bevel gear  
x 1



Spur Gear24T  
x 3



Axle Triple Pin  
Perpendicular  
Connector  
x 1



1Cx1H  
Perpendicular  
Connector  
x 1



Axle Filler- Small  
x 12



Axle Filler-Big  
x16



3H Axle  
x1



5H Capped  
Axle x 2



6H Axle  
x 4



8H Axle  
x 2



10H Axle  
x 1



Shot pin yellow  
x 1



Medium  
Pin-Black  
x 13



Medium Axle  
Pin-Blue  
x 2



Long Pin-Blue  
x 13



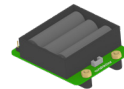
Long  
Pin Yellow  
x 1



Axle Angle  
Connector -180  
x 2



Axle Angle  
Connector-135  
x 2



Avishkaar  
MEXCore  
x 1

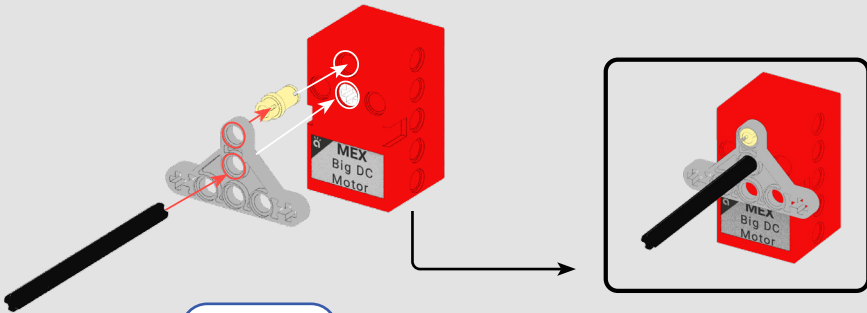


MEX Big DC  
Motor  
x 1

1

1:1

8H Axle

**Build Tip**

**Short Yellow Pins can be a little delicate!**

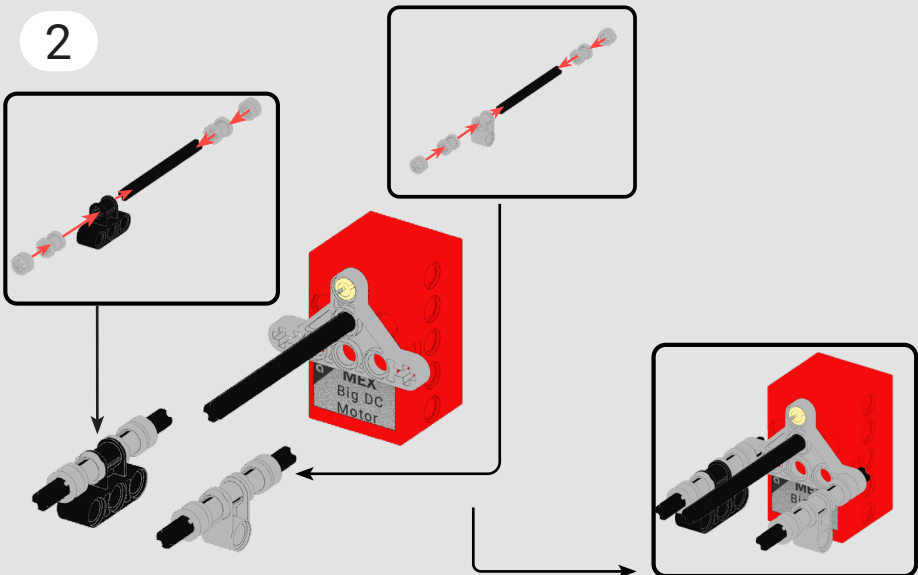
Be careful while using them. They break easily. And they can also be hard to remove - take the help of a parent or an adult to remove them safely.



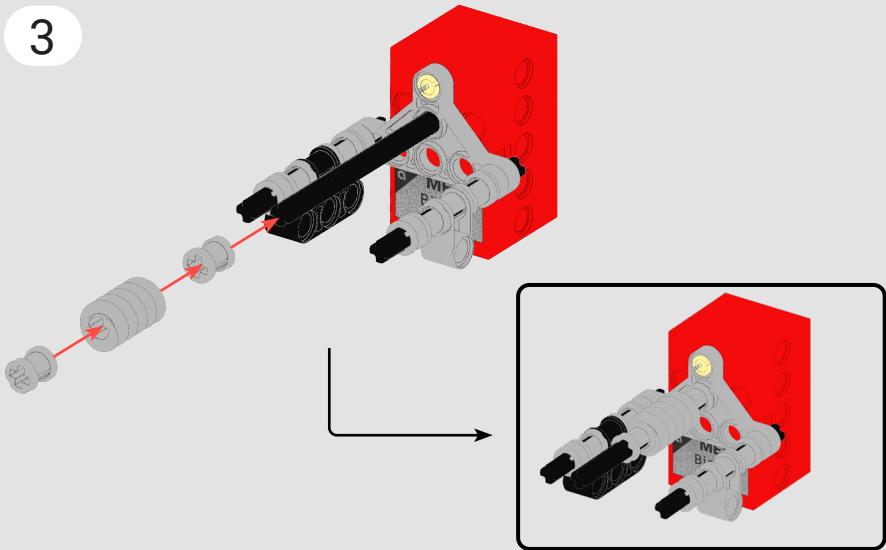
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6H Axle

2



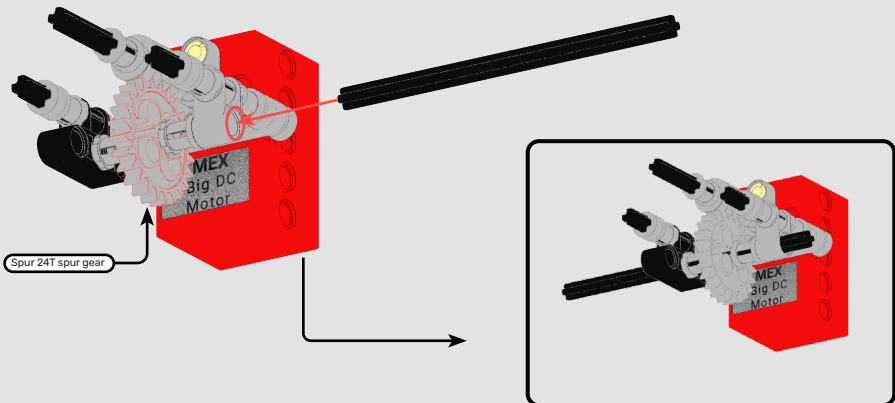
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4

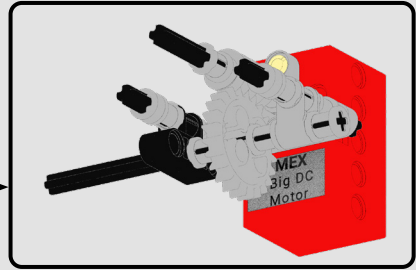
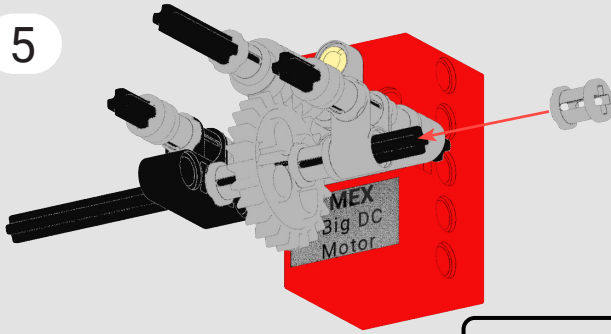
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10H Axle

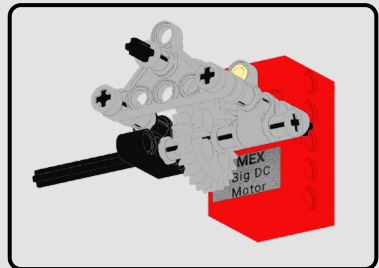
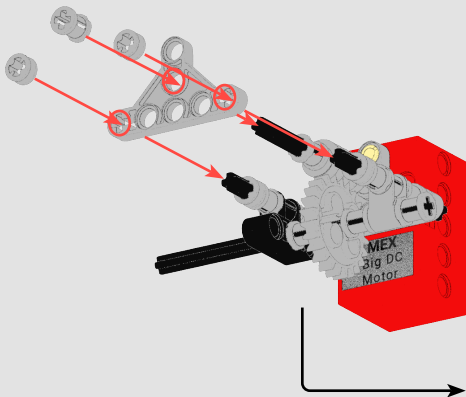




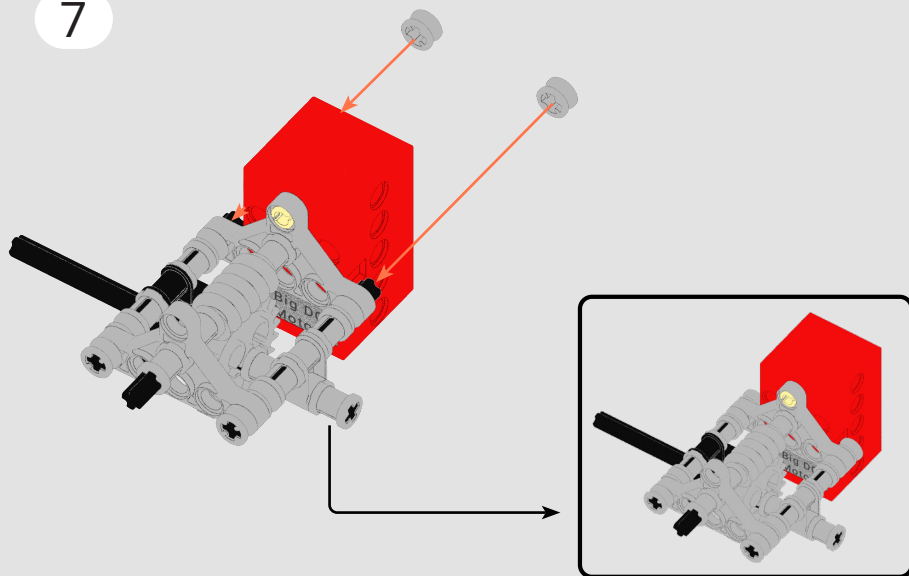
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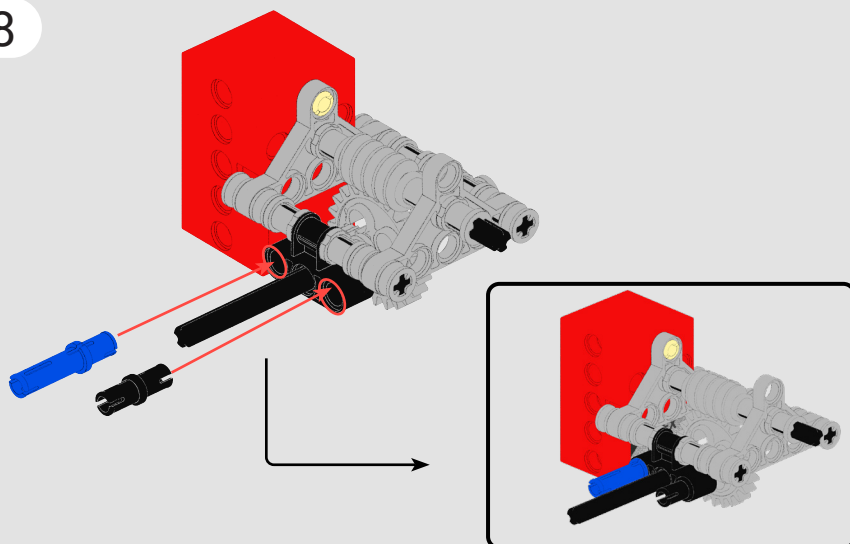
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7



8



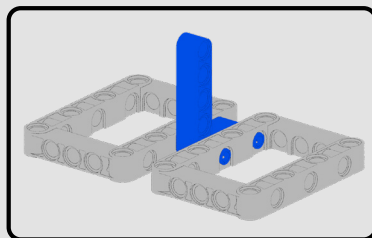
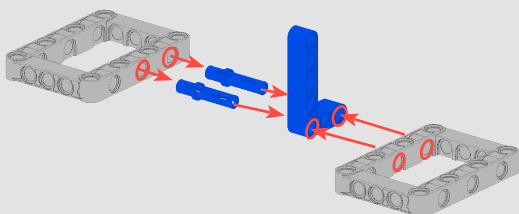
9

Let's make the base structure.

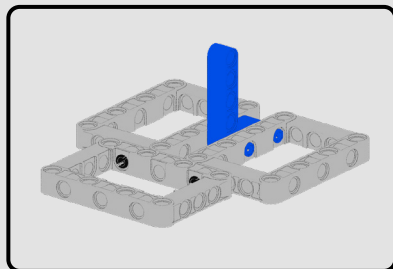
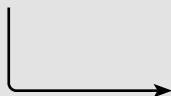
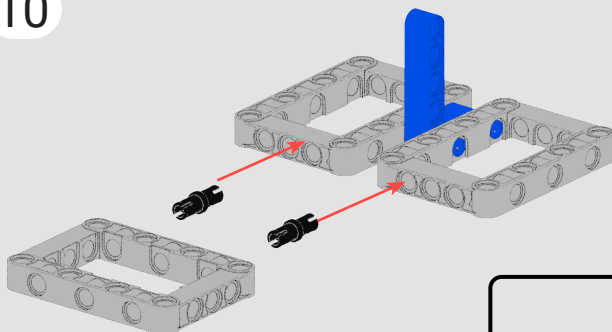
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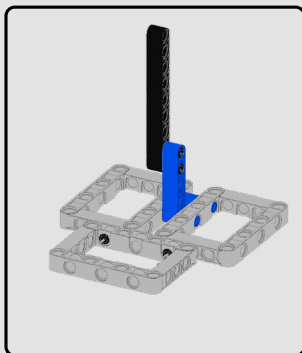
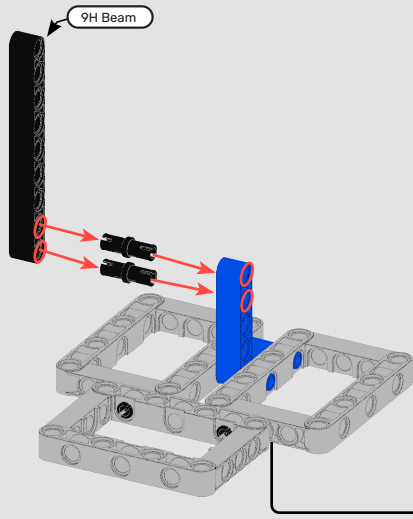
Long Pin Blue



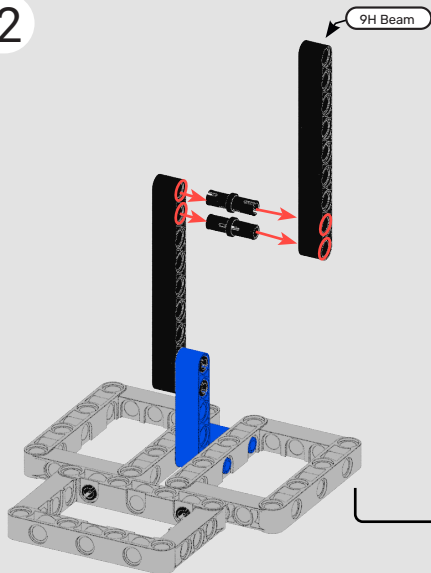
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11



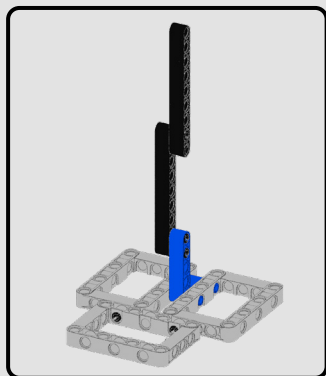
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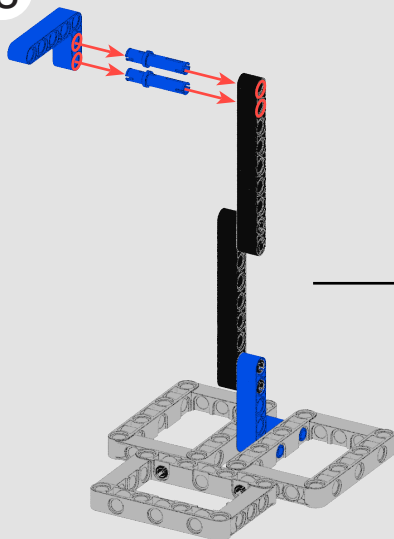
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Long Pin Blue



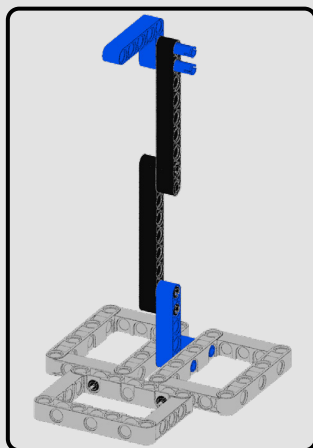
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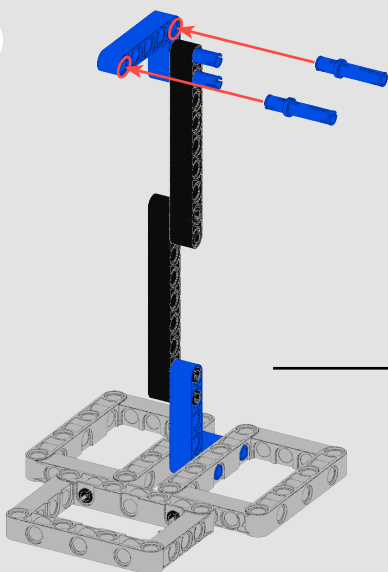
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Long Pin Blue



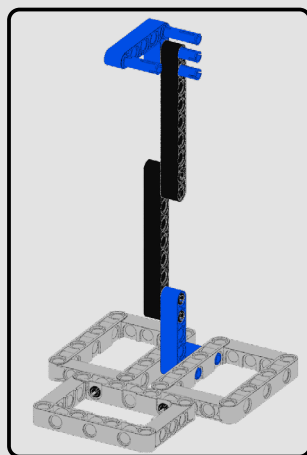
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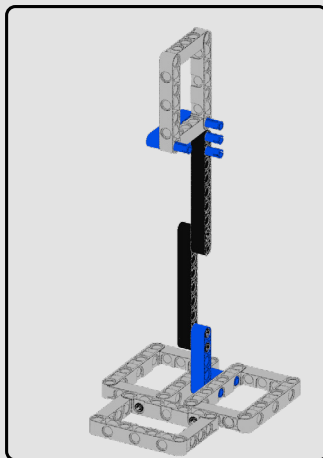
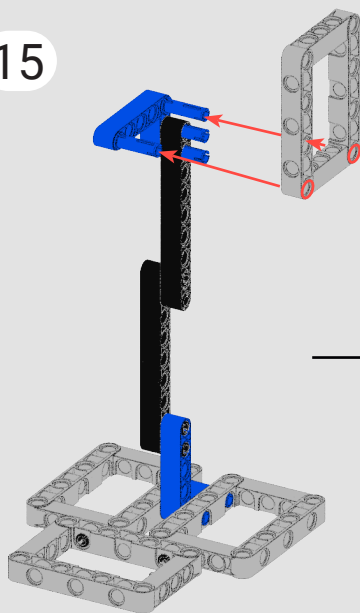
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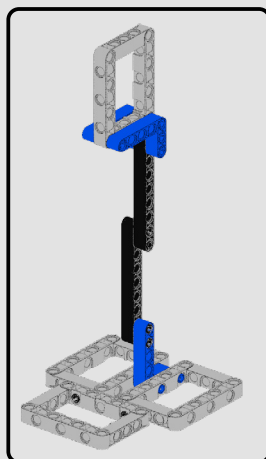
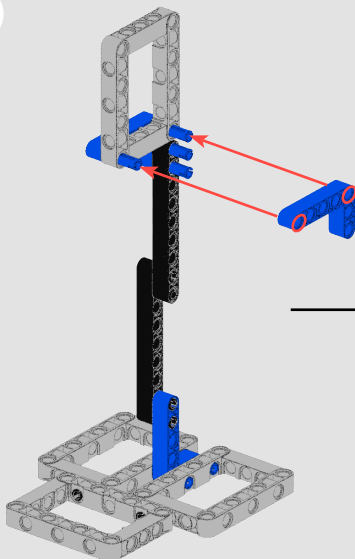
Long Pin Blue



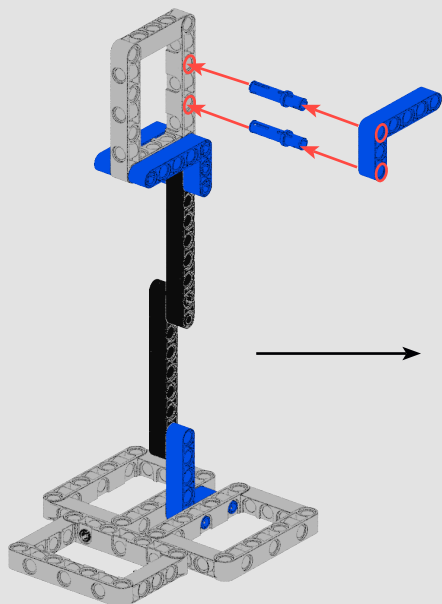
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16



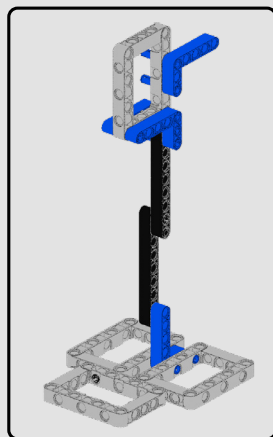
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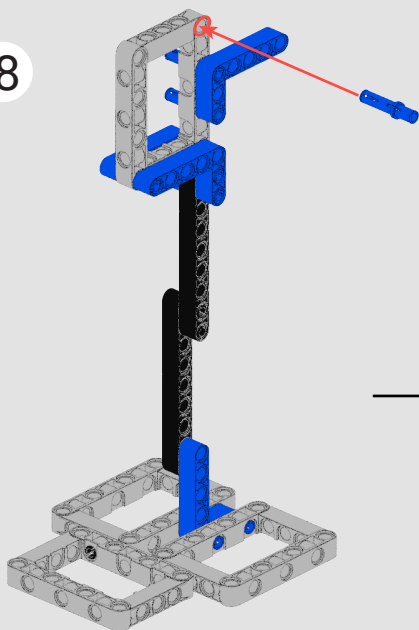
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Long Pin Blue



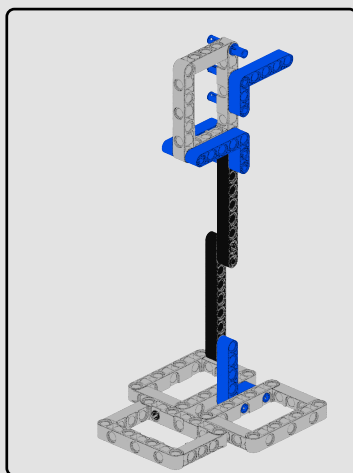
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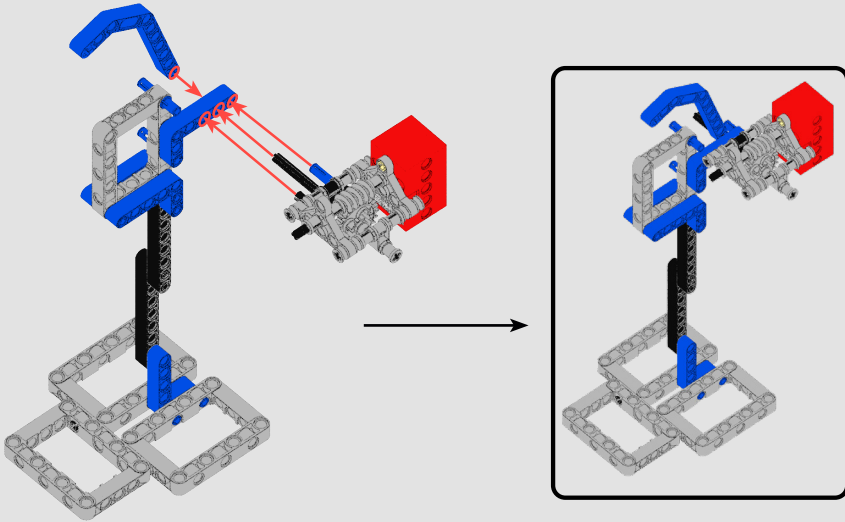


Long Pin Blue

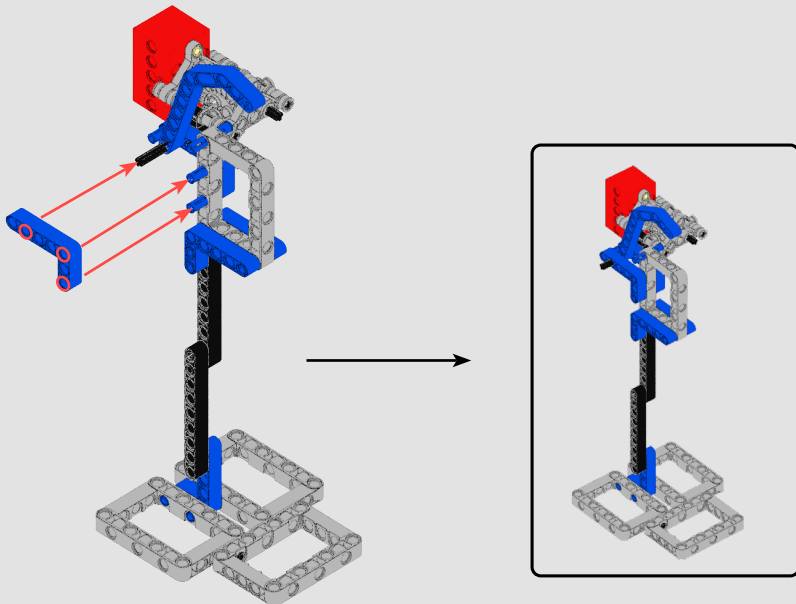


19

Let's Assemble the base stucture and motor mechanism.

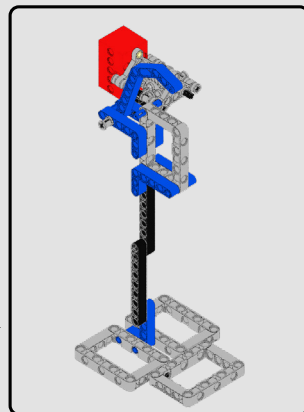
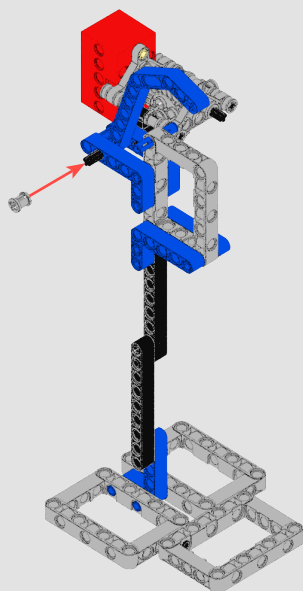


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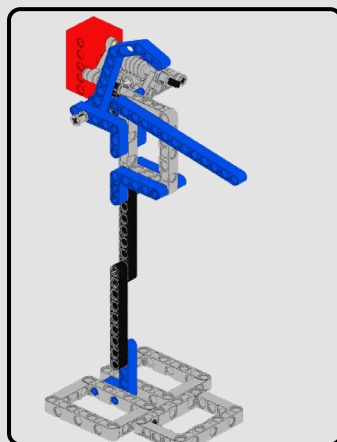
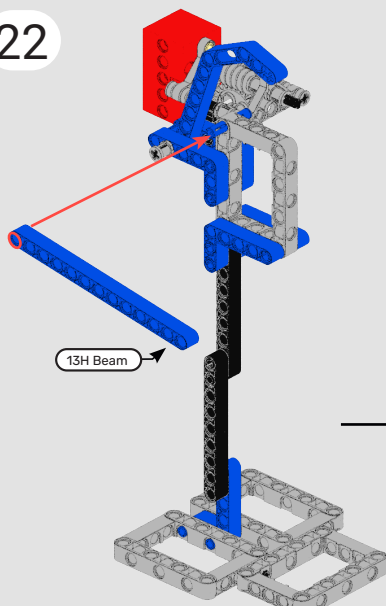




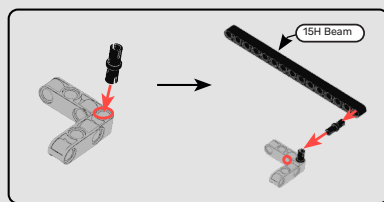
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22



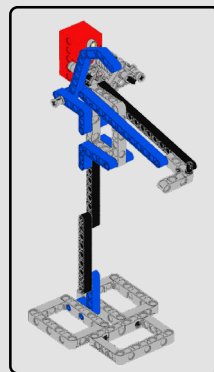
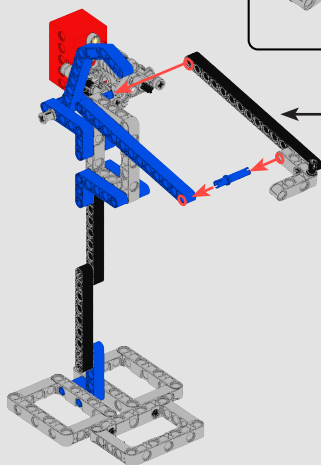
23



1:1



Long Pin Blue

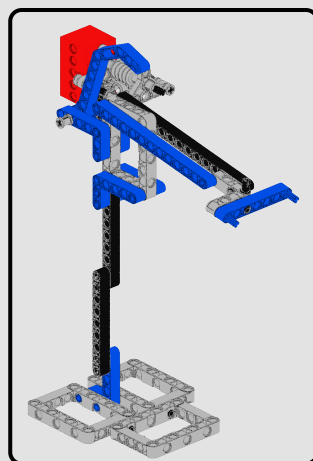
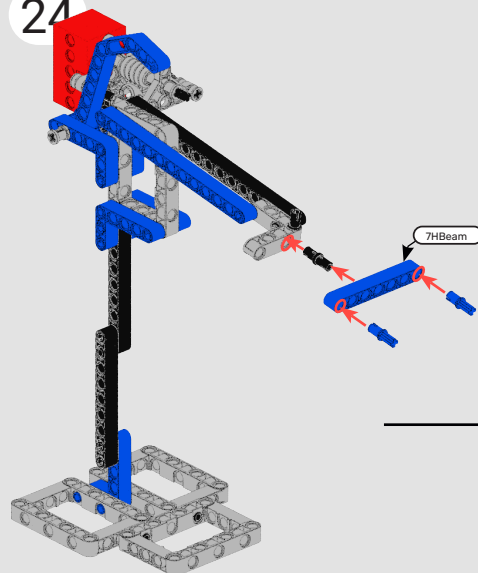


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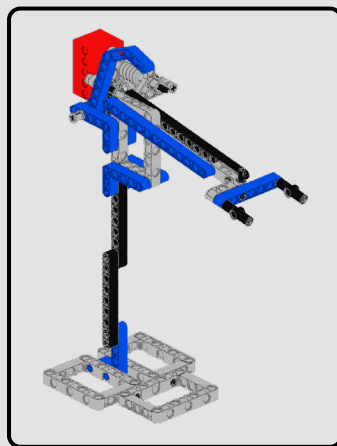
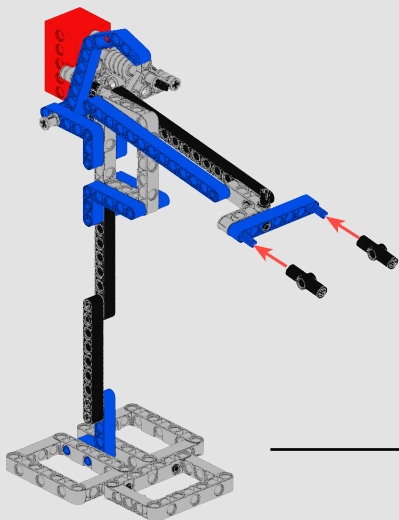
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Medium Axle Pin Blue



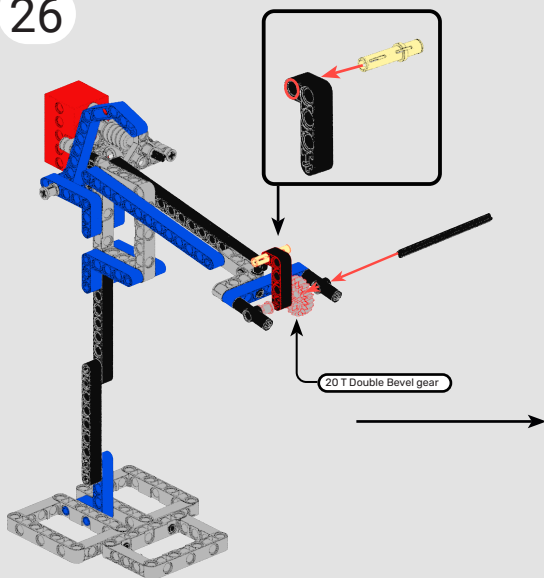
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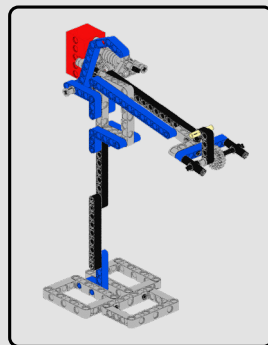
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8H Axle

26



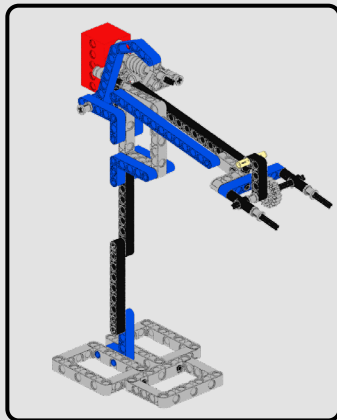
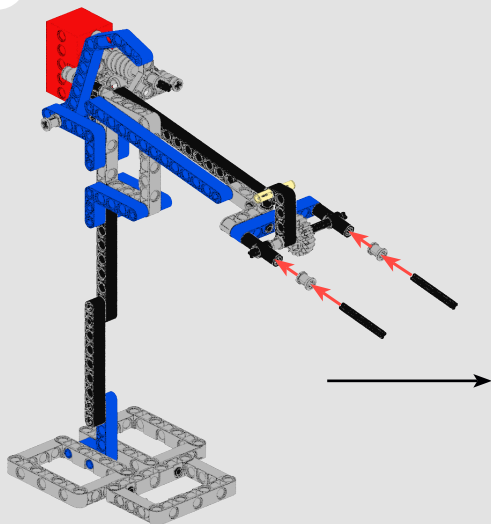
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27

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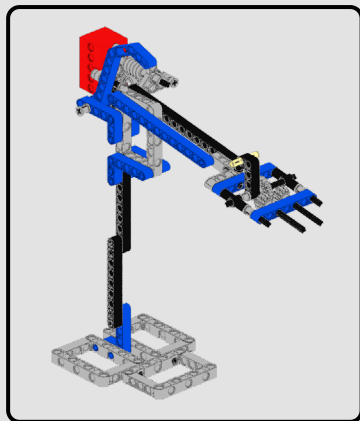
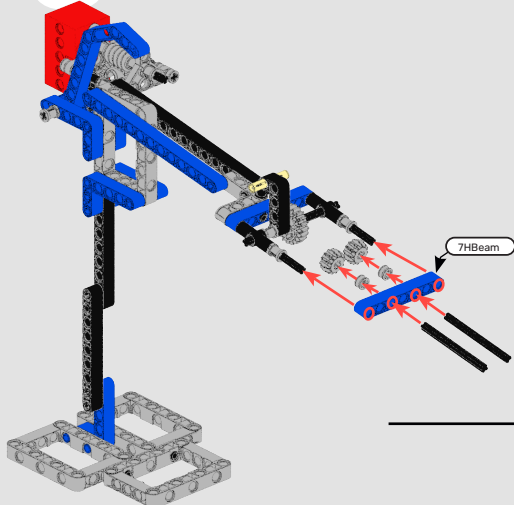
4H Axle



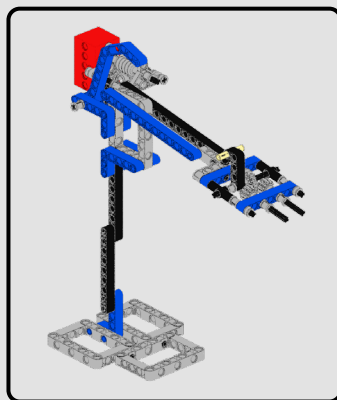
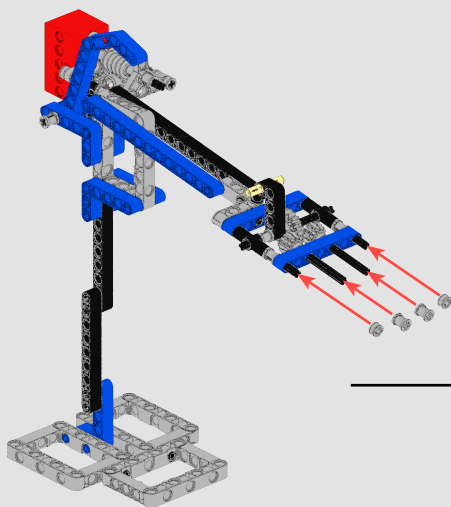
1:1

6H Axle

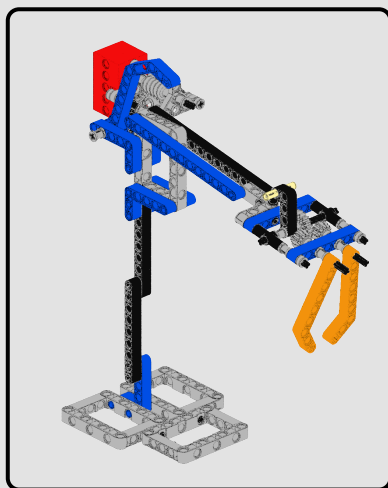
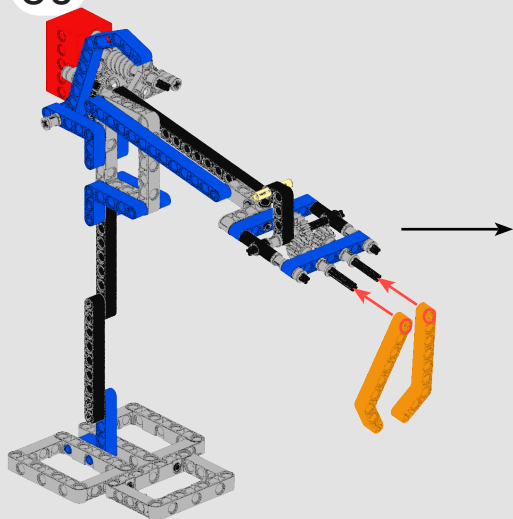
28



29



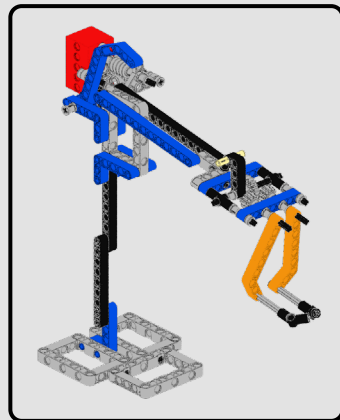
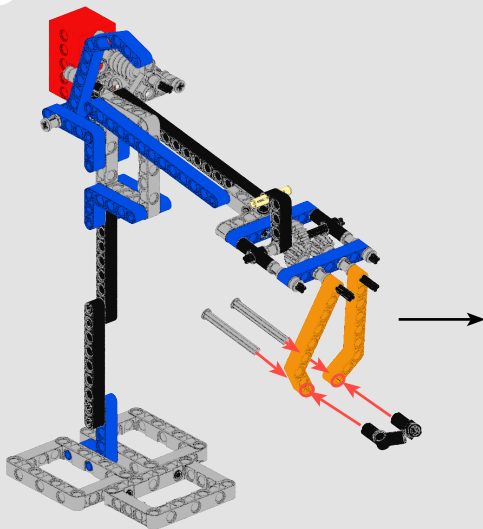
30



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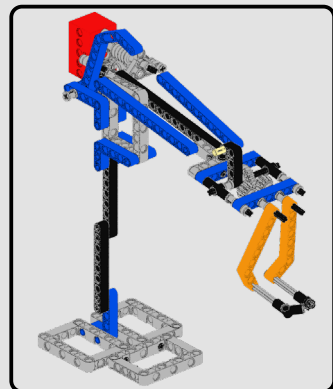
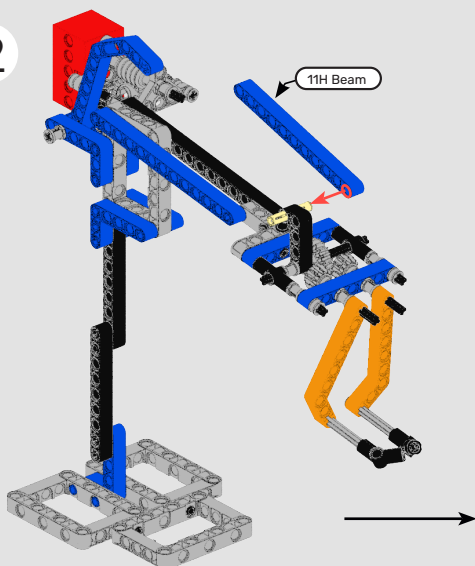
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5H Axle Capped

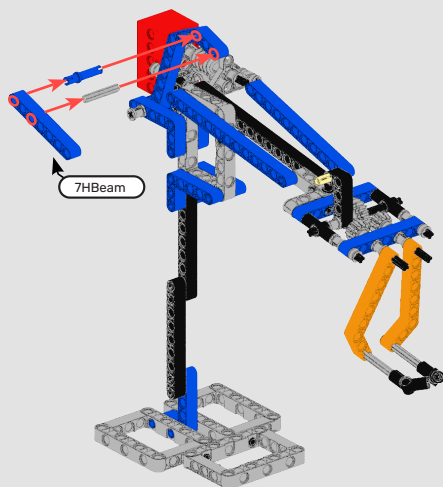


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11H Beam



33



1:1

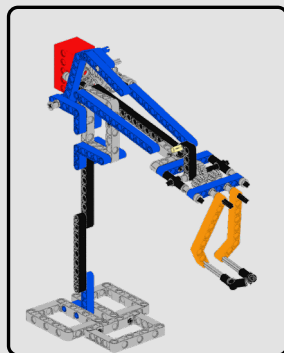


Long Pin Blue

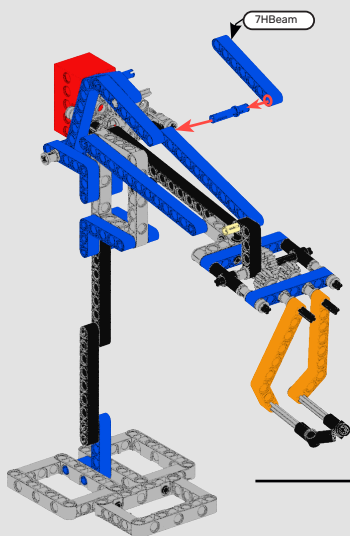
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3H Axle



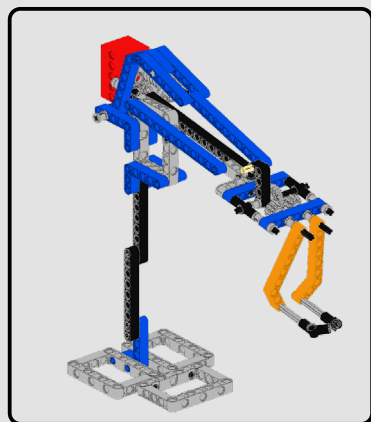
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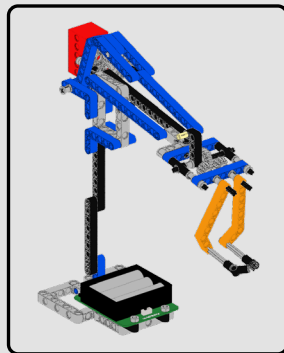
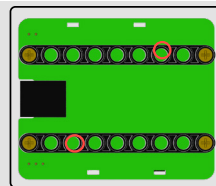
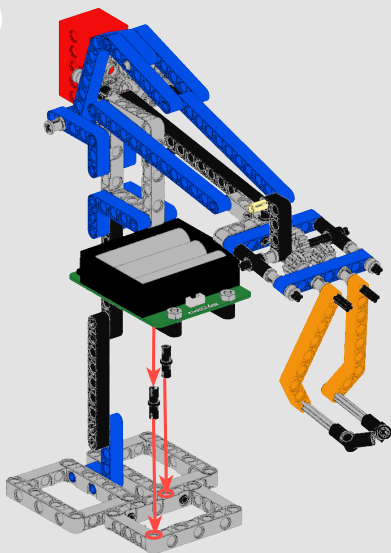
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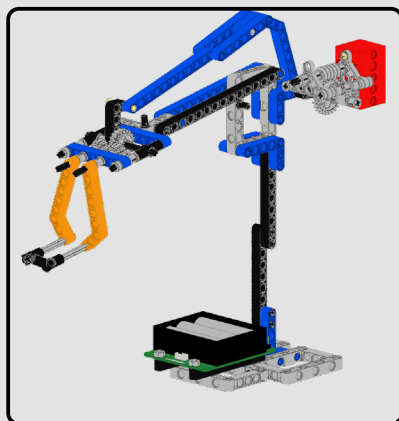
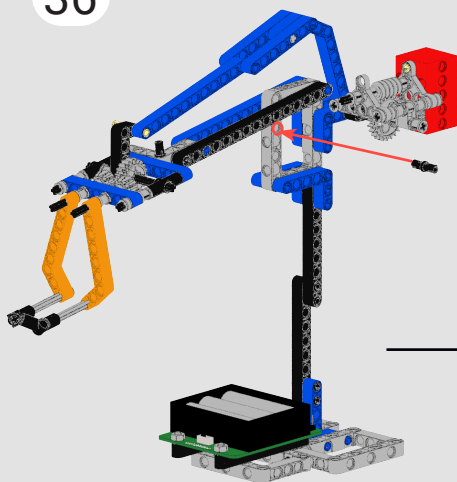
Long Pin Blue



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# Congratulations on Completing this Project!

Excited to play with it using the avishkaar mobile app?

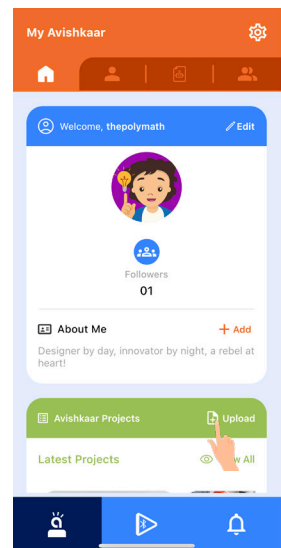
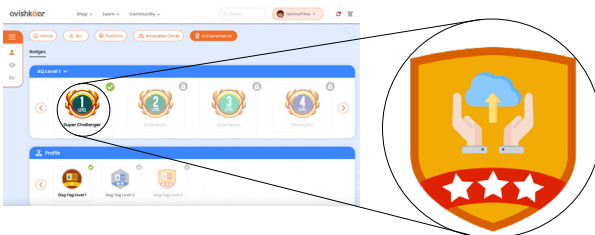
Go to Pg 8 about the detailed instructions on how to download the app and control your bot using it.



## Share your Creation with the World and Win the 'Scratch the Surface' Level 3 Badge

Upload photos or videos of your project using the project section of the Avishkaar App to win the 'Scratch the Surface' Level 3 Badge.

See all your collected badges in the achievement section of your profile on [www.avishkaar.cc](http://www.avishkaar.cc). Explore all other badges to be collected and win them all!



# Facing an Issue?

Our technical support is available to assist you at these timings -

Monday to Saturday: 9am to 8pm

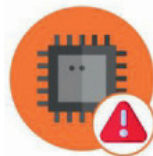
Sunday and 3rd Saturday: 9am to 6pm



Software Issues

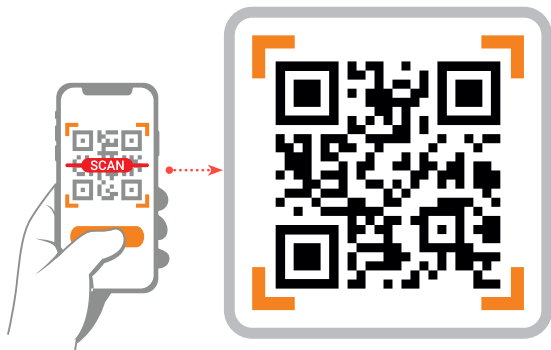


Usability Issues



Hardware Issues

Contact support by scanning the QR Code.




[support@avishkaar.cc](mailto:support@avishkaar.cc)

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# avishkaar

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@AvishkaarEdu