ZEPHYR
More Than Just Play

Blix

AMUSEMENT PARK

DO-IT YOURSELF MANUAL

1. Read all instructions carefully before constructing.
2. Place all the pieces used in a step on the side before starting.
3. Always re-check the construction after every step.

MOTORISED GEARBOX

QUICK CONSTRUCTION

GEAR SYSTEM

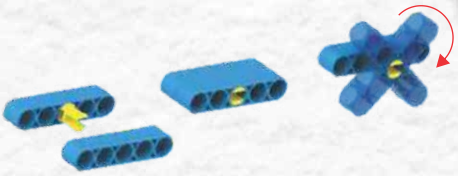
2 WAY SWITCH

AGE 7-99

MODELS 7

PIECES 340+

How to construct

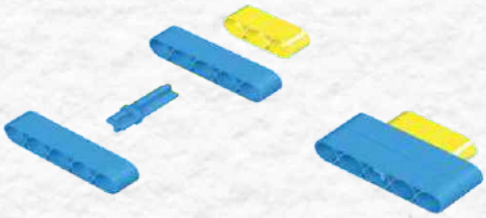


I - CL2 - Use this connector to loosely connect 2 pieces.

II - CT2 - Use this connector to attach 2 pieces.

III - CT3 - Use this connector to attach 3 pieces.

During assembly ensure position of collar is same as in the image in manual.



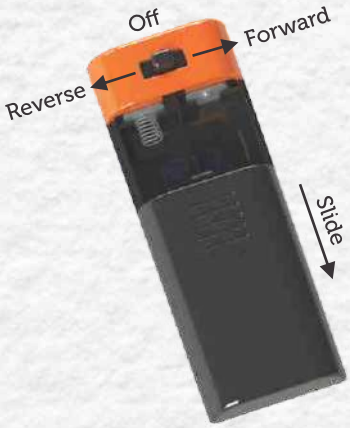
How to dismantle

- Narrow edge to remove connectors
- Fit the tool into narrow side of connector collar

- Broad edge to split two pieces

Important Information:

- How to remove and insert the batteries



- Non-rechargeable batteries are not to be recharged.
- Rechargeable batteries are only to be charged under adult supervision.
- Rechargeable batteries are to be removed from the toy before being charged.
- Different types of batteries or new and used batteries are not to be mixed.
- Batteries are to be inserted with the correct polarity.
- Exhausted batteries are to be removed from the toy.
- The supply terminals are not to be short-circuited

GEARS!

Reminds you of the gear stick near the driver in a car, doesn't it? Well why is that stick there? Have you noticed when it is used? Do you feel more speed when the gear goes up? And do you hear the engine growl when you don't change the gear in time? So why put such a clunky noisy device in a car!

Gears are all around us in most machines that we use daily like cars, watches, toys, printers etc. And they are a fascinating and integral part of our world today. In this set, we shall be using gears in a number of places to change speed, power, direction etc. Before we start building, let's understand a few applications of Gears!

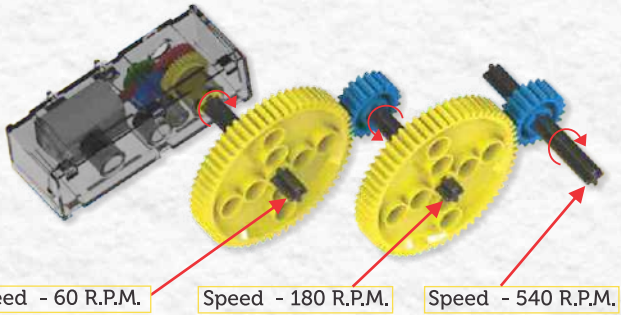
1. To Change Speed:

You must've noticed how gears in a car helps to change the speed. When the car starts, we select 1st gear to start moving, gradually increasing gears till the top gear for highest speed.

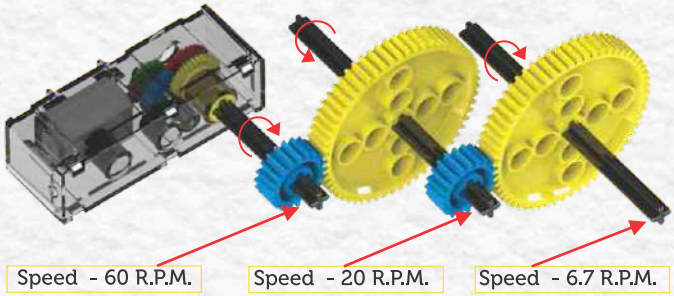
Calculations: $$\frac{\text{Teeth on big gear}}{\text{Teeth on small gear}} = \frac{\text{Speed of small gear}}{\text{Speed of big gear}}$$

Therefore: $$\frac{60}{20} = \frac{\text{Speed of small gear}}{\text{Speed of big gear}}$$

Therefore: Speed of small gear = 3X Speed of big gear



2. To change Torque (Power):



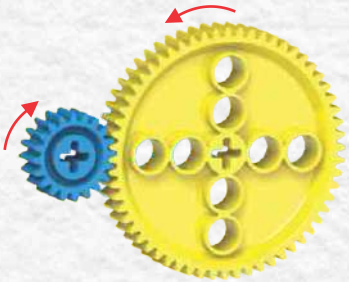
Torque is the twisting force that is required to move the car. In a car, the top gear doesn't have enough torque to rotate the wheels, hence we first have to shift over the lower gears, where torque is high.

Speed and power have a funny relationship when it comes to gears. If gears increase speed, power reduces and if gears reduce speed, power increases. And they always increase or decrease in the same ratio. If the gears are connected to reduce speed (by connecting the motor to the smaller gear), the power increases by three times.

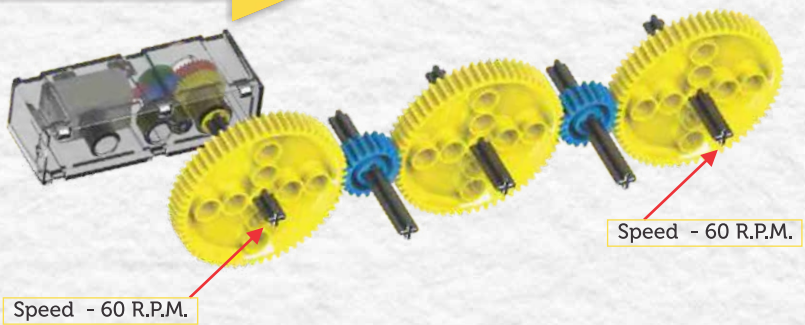
So now we know that the 1st gear has more torque and less speed and the 5th gear has more speed and less torque.

3. Changing Direction of rotation:

There may be some applications where the direction of rotation is specified, but what if the motor runs in the opposite direction? Any 2 gears meshing together, rotate in opposite directions.



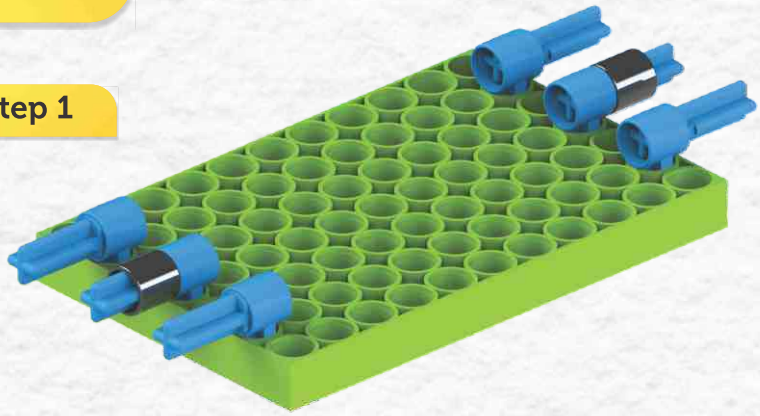
4. Changing Distance:



Many gears can be attached together in a straight line to increase distance between input axis and output axis. In such a case, only the size of the first and last gear affect the speed. The gears in the middle are thus called idler gears.

Model 1

Step 1



TW1 | 2 pcs.

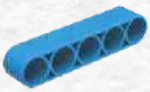
CH2 | 6 pcs.

CT3 | 6 pcs.

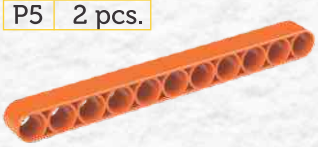
P7X11 | 1 pc.

Step 2

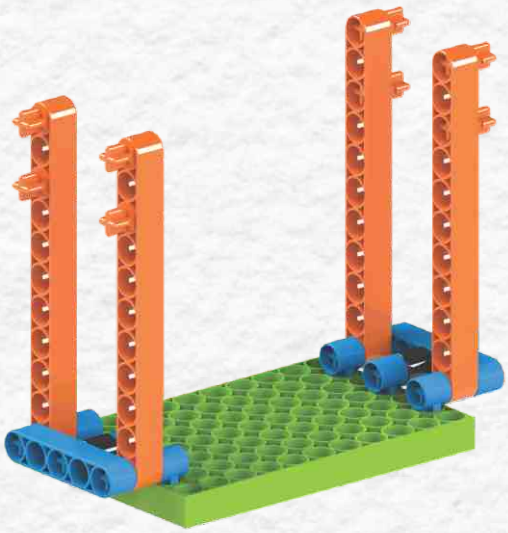
CT2 | 8 pcs.



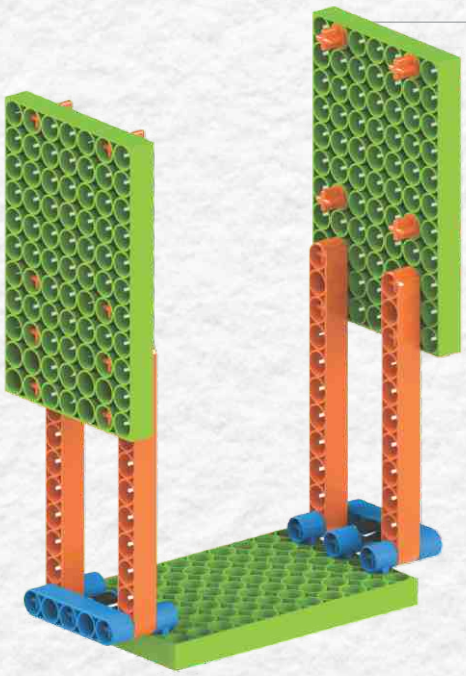
P5 | 2 pcs.



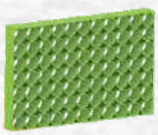
P11 | 4 pcs.



Step 3

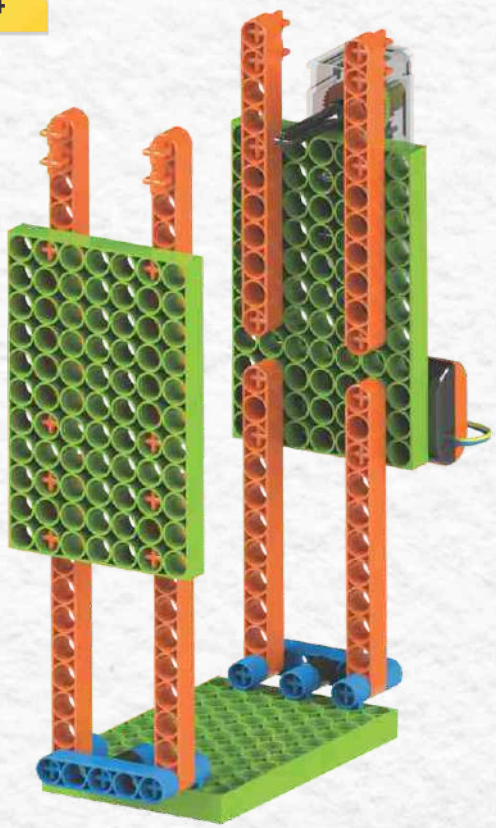


CT2 | 8 pcs.



P7X11 | 2 pcs.

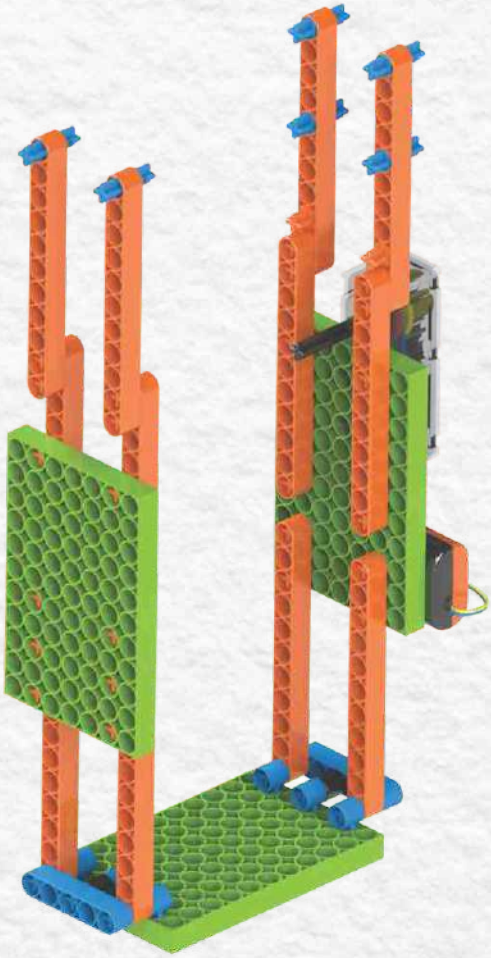
Step 4



CT2 | 8 pcs.

Motor with Battery Box

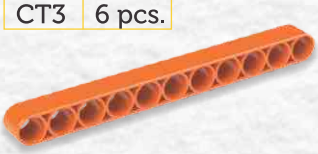
P11 | 4 pcs.



Step 5

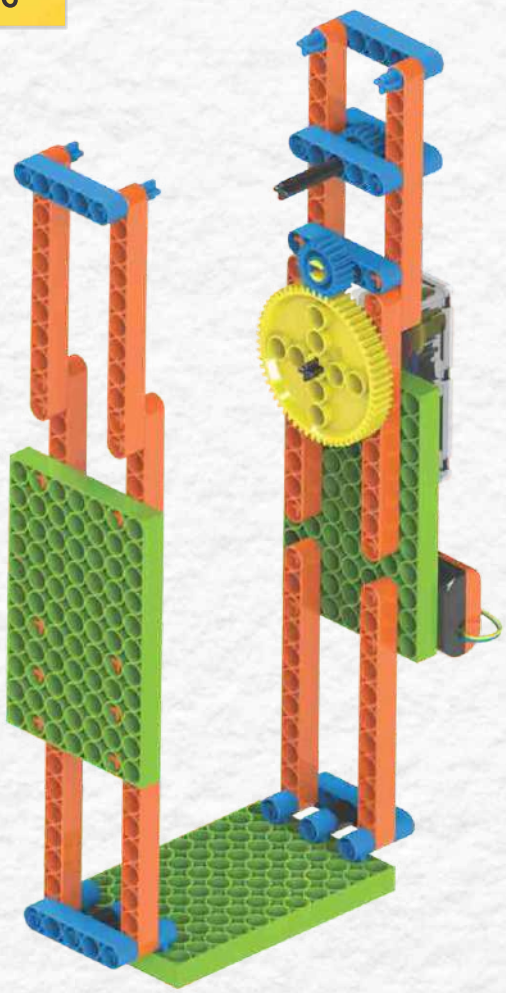
CT2 | 2 pcs.

CT3 | 6 pcs.



P11 | 4 pcs.

Step 6



CL2 | 1 pc.

P5 | 5 pcs.

SH60 | 1 pc.

G(20) | 1 pc.

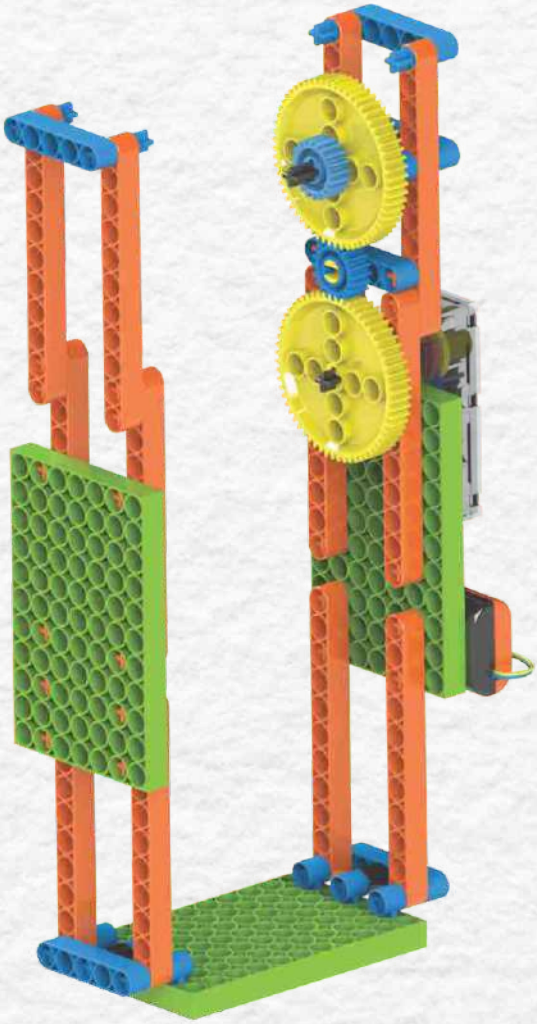
G(20) Idler | 1 pc.

G(60) | 1 pc.

Step 7

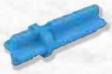
G(20) | 1 pc.

G(60) | 1 pc.



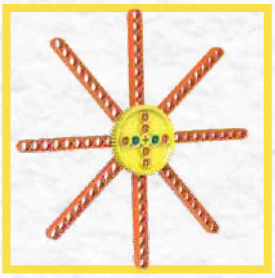
Step 8

CT2 | 10 pcs.

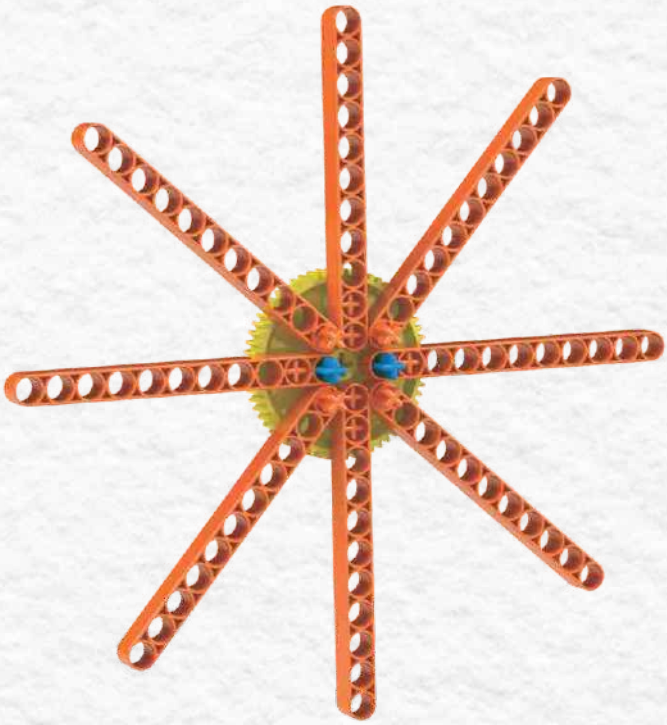


CT3 | 2 pcs.

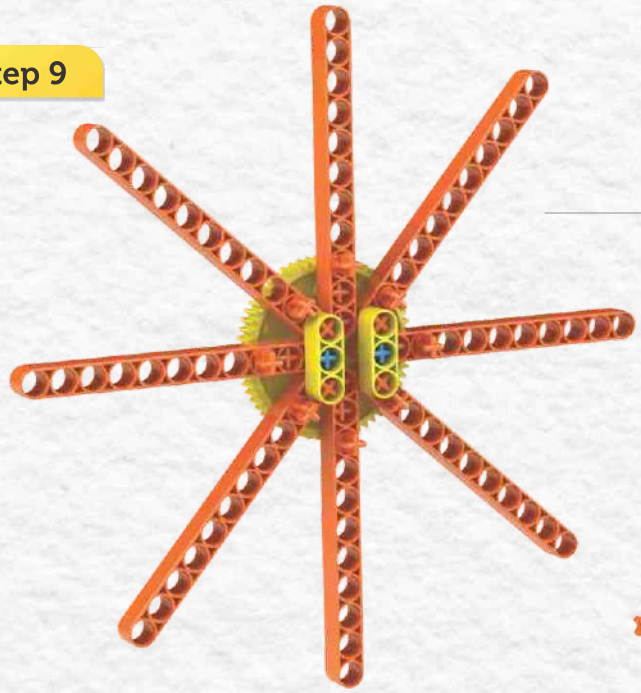
P11 | 8 pcs.



G(60) | 1 pc.

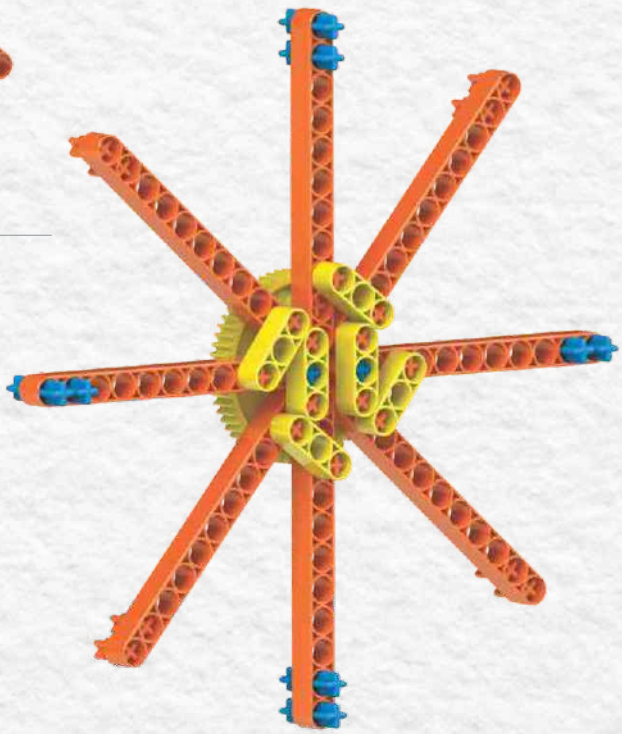


Step 9



CT2 | 8 pcs.

P3 | 2 pcs.



Step 10

CT2 | 8 pcs.

CT3 | 8 pcs.

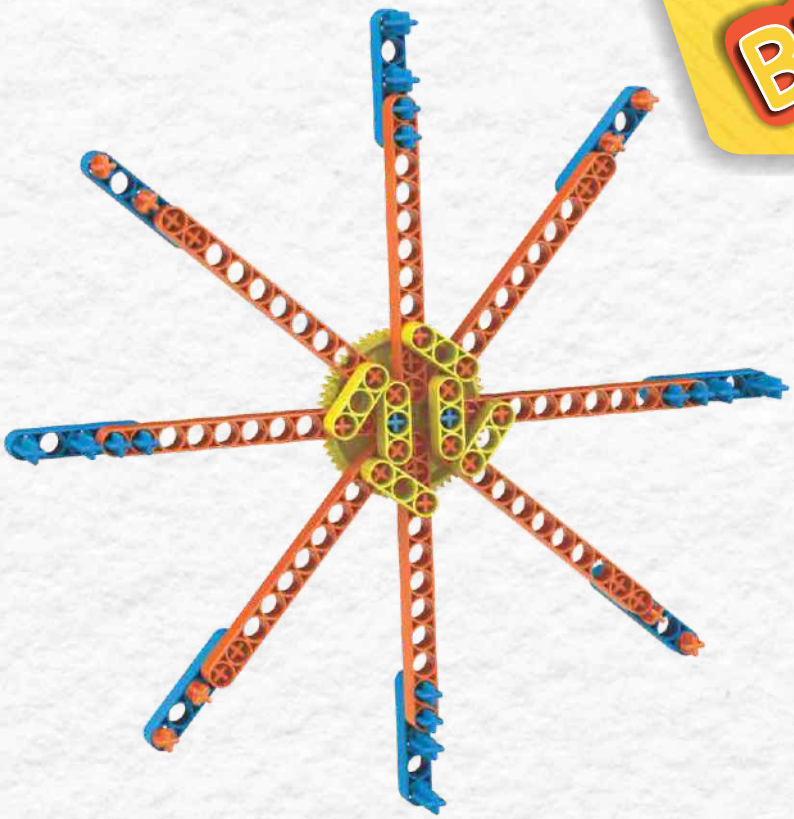
P3 | 4 pcs.

Step 11

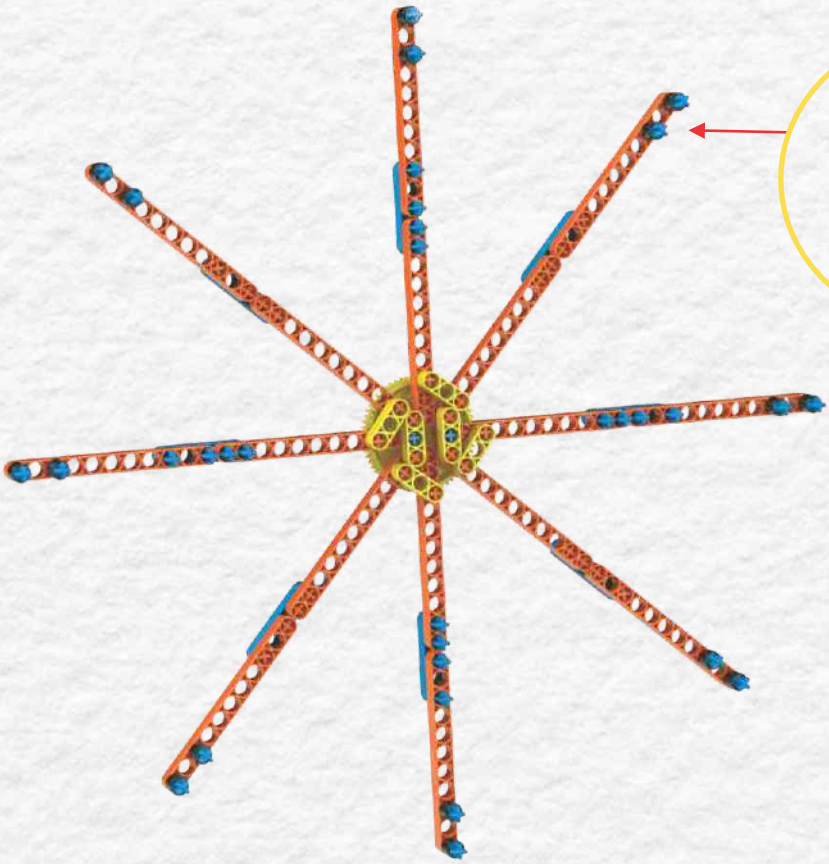
CT2 | 8 pcs.

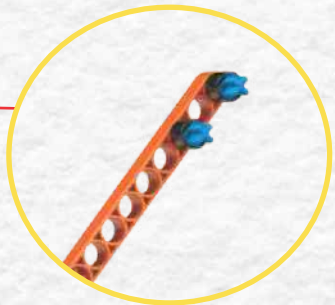
CT3 | 8 pcs.

P5 | 8 pcs.



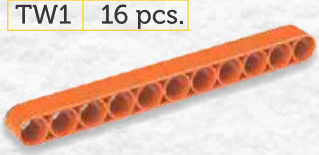
Step 12





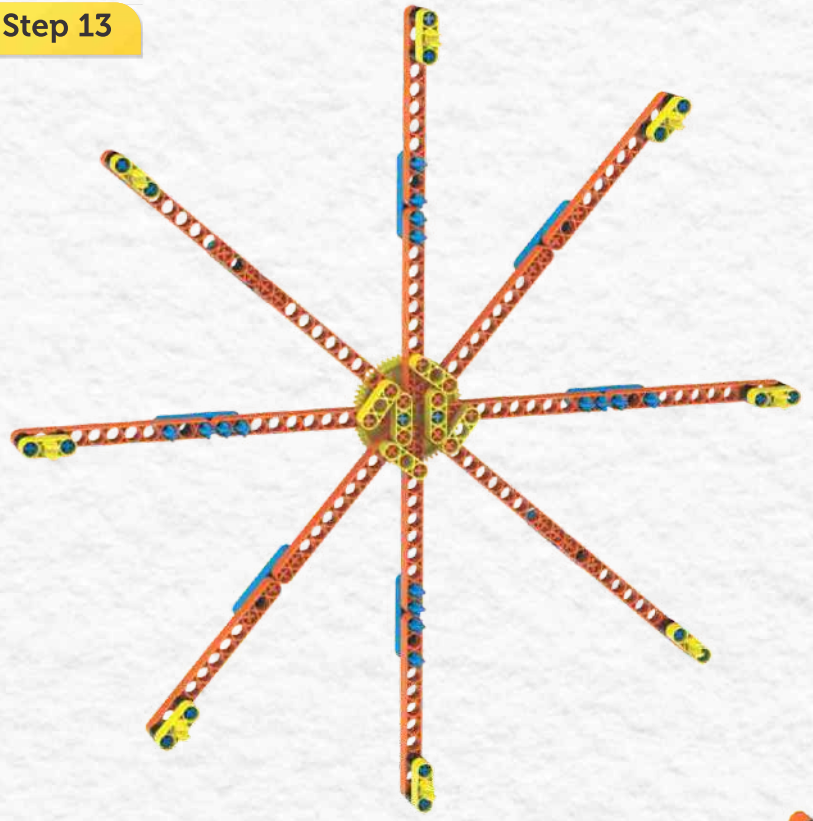
CT3 | 16 pcs.

TW1 | 16 pcs.



P11 | 8 pcs.

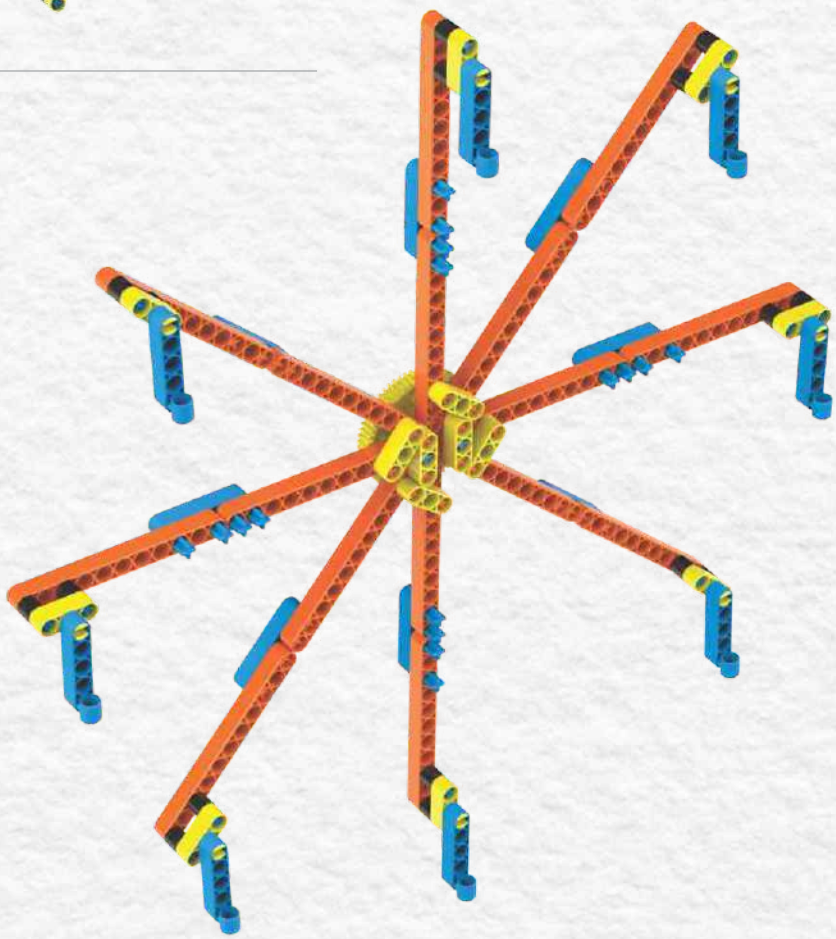
Step 13



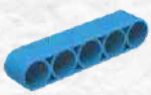
CL2 | 8 pcs.

P3 | 8 pcs.

Step 14



CH2 | 8 pcs.

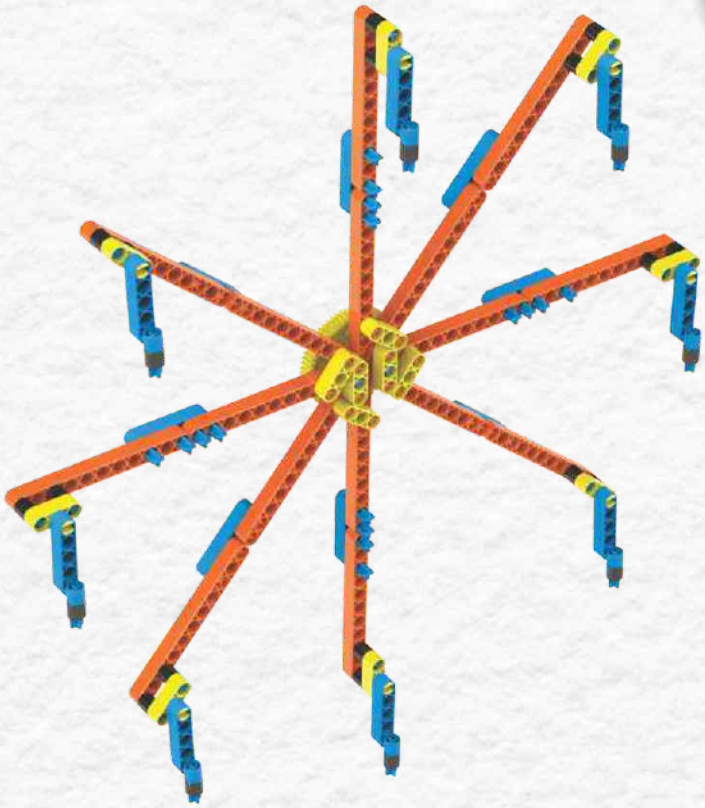


P5 | 8 pcs.

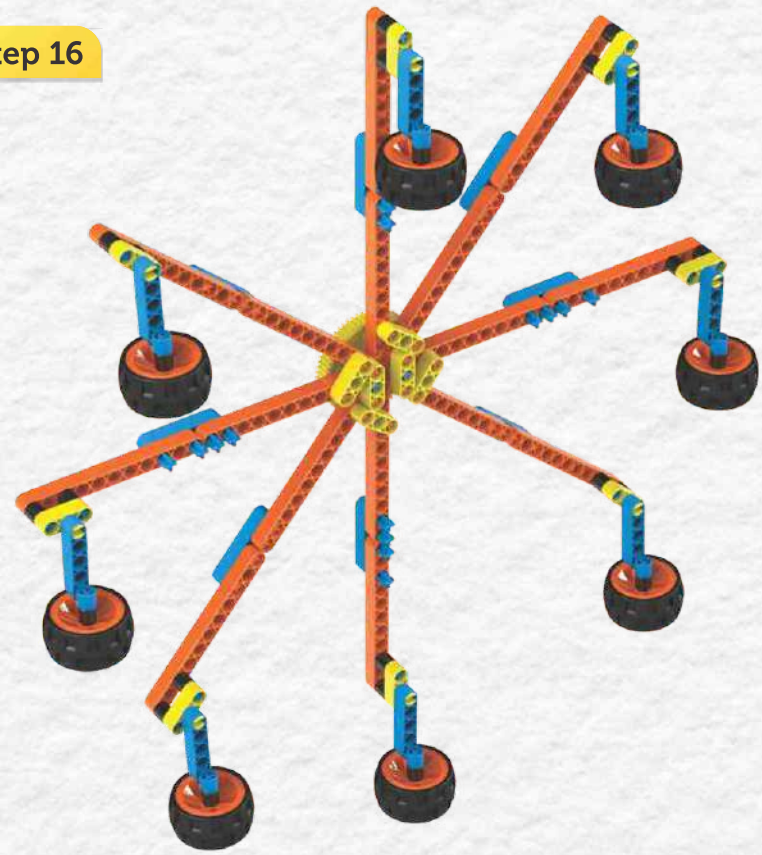
Step 15

TW1 | 8 pcs.

CT3 | 8 pcs.

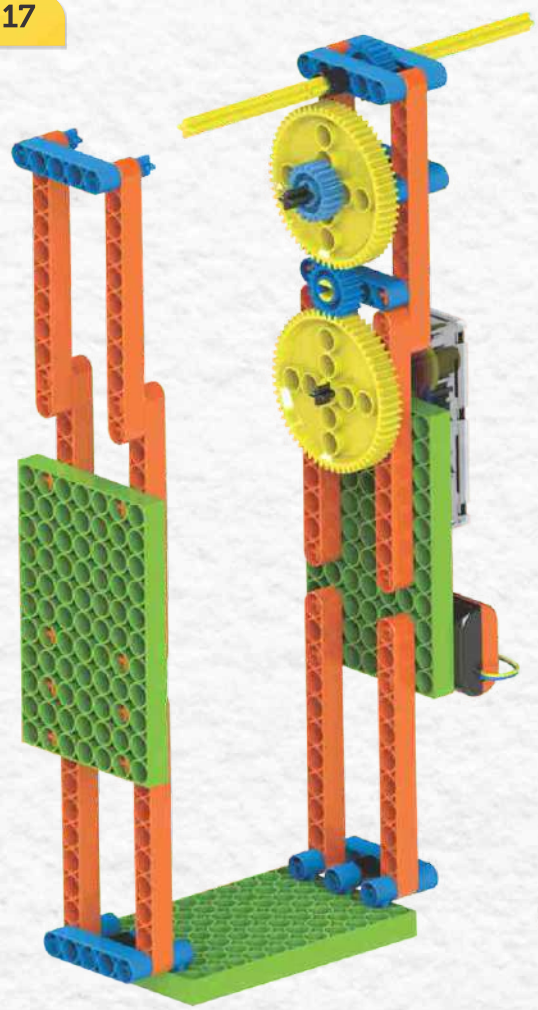


Step 16

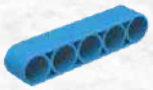


Wheels | 8 pcs.

Step 17

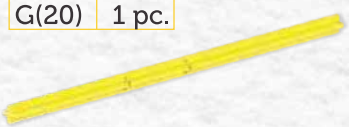


TW1	1 pc.

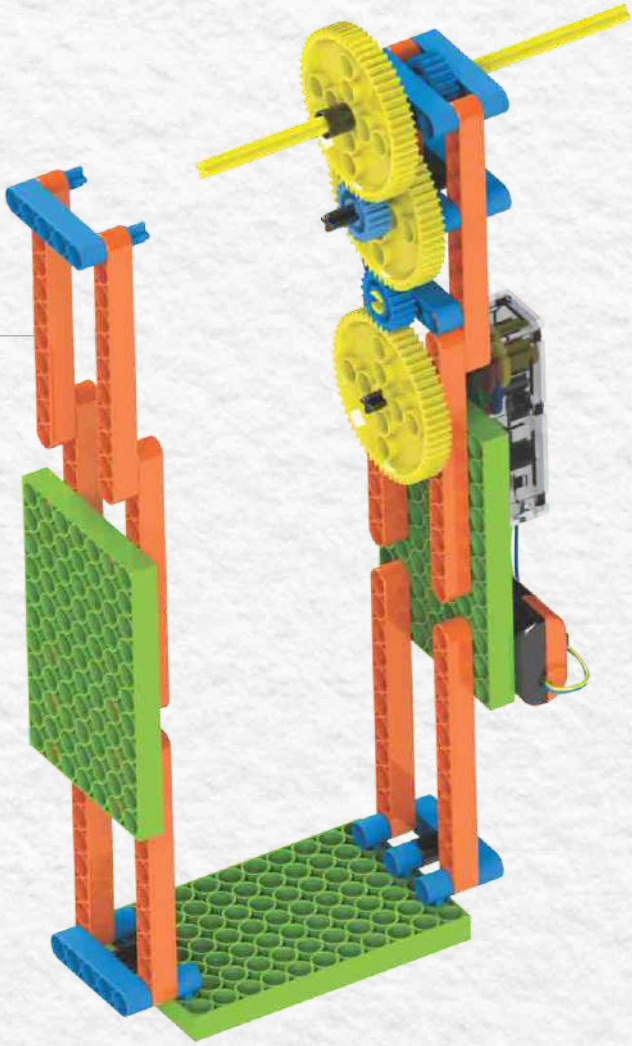


P5	1 pc.

G(20)	1 pc.



SH170	1 pc.



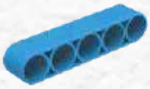
Step 18

TW1	1 pc.

G(60)	1 pc.

Step 19

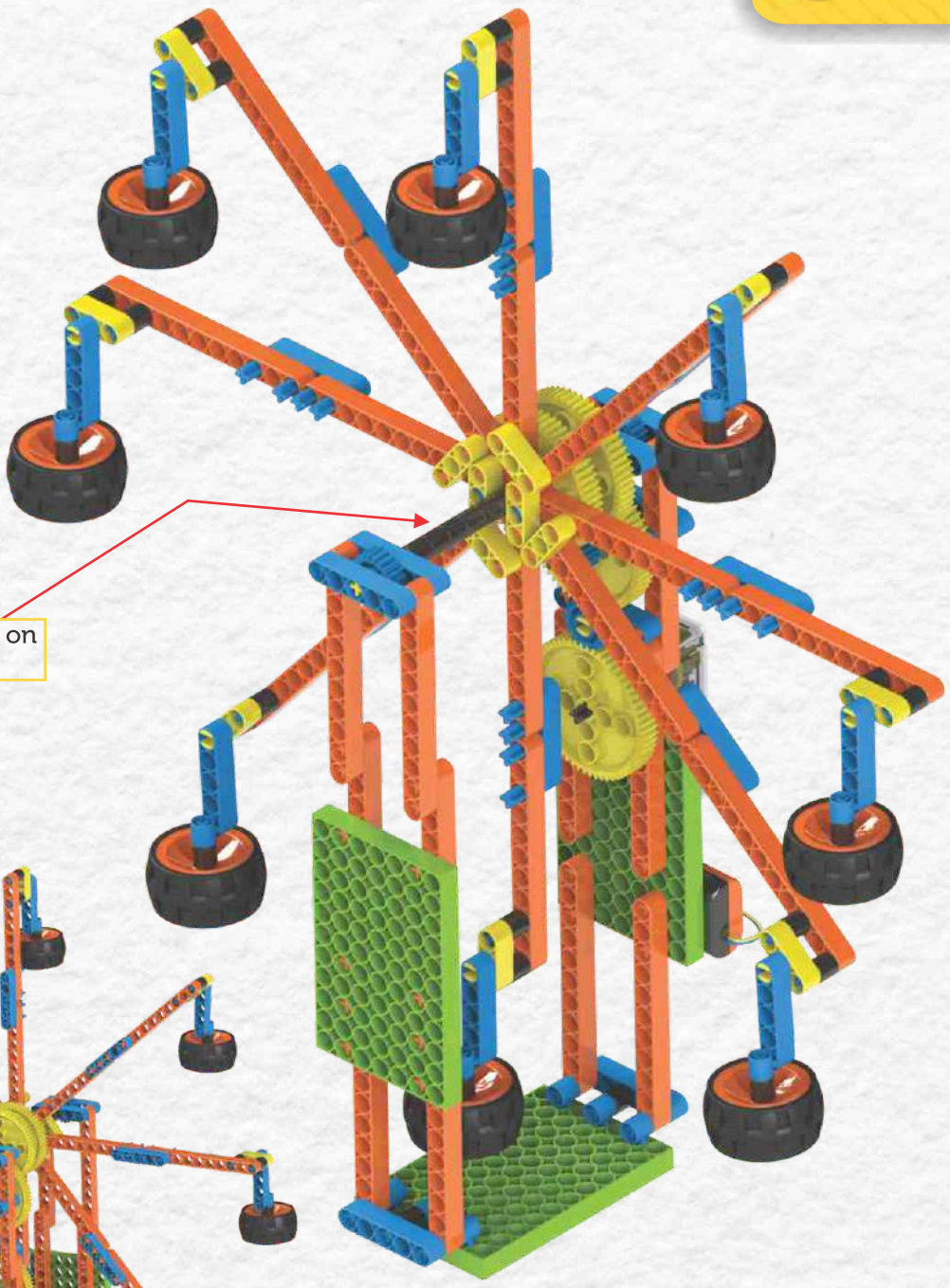
TW1 | 7 pcs.



P5 | 1 pc.

G(20) | 1 pc.

Assembly of Step 18 and Step 16



Add 7 pcs. of TW1 on the shaft

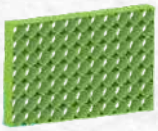
Model 2

Step 1

CT2 | 2 pcs.

P3 | 1 pc.

CT3 | 2 pcs.



P7X11 | 1 pc.

TW1 | 3 pcs.

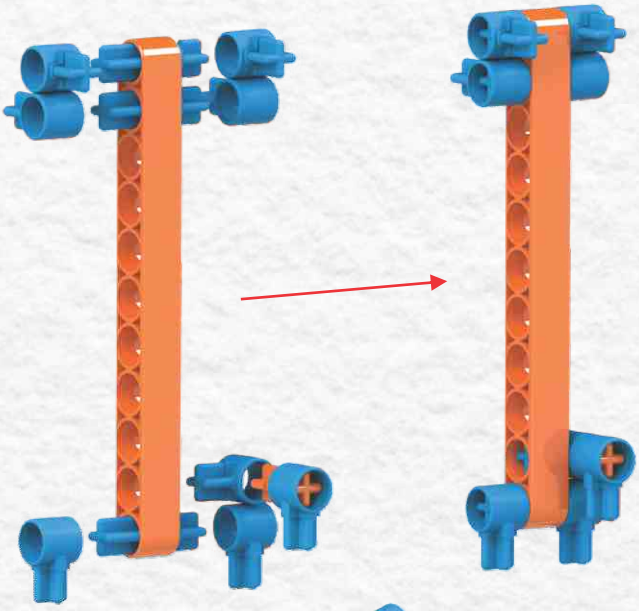
Step 2

P11 | 1 pc.

CT3 | 3 pcs.

CH2 | 8 pcs.

CT2 | 1 pc.

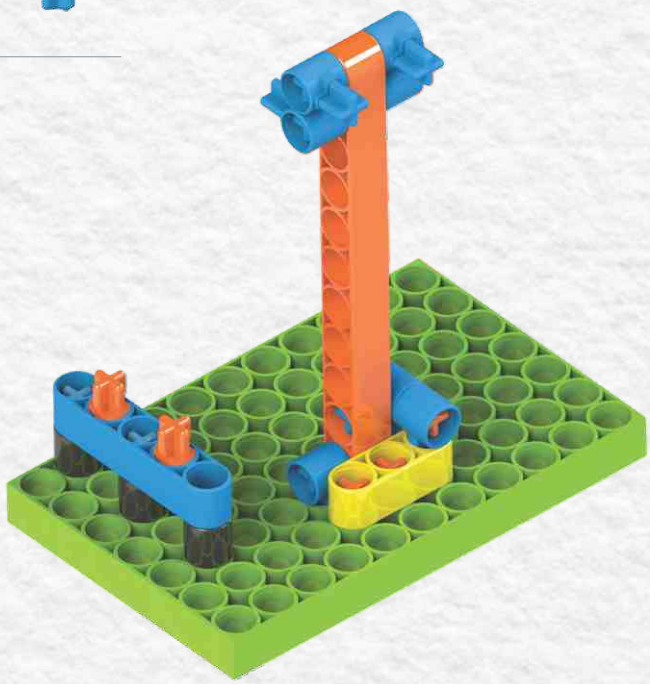


Step 3

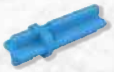
Assembly of Step 1 and Step 2

CT2 | 2 pcs.

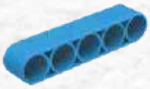
P5 | 1 pc.



Step 4



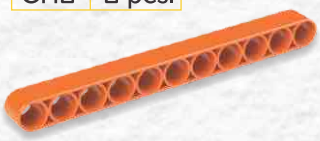
CT3 | 6 pcs.



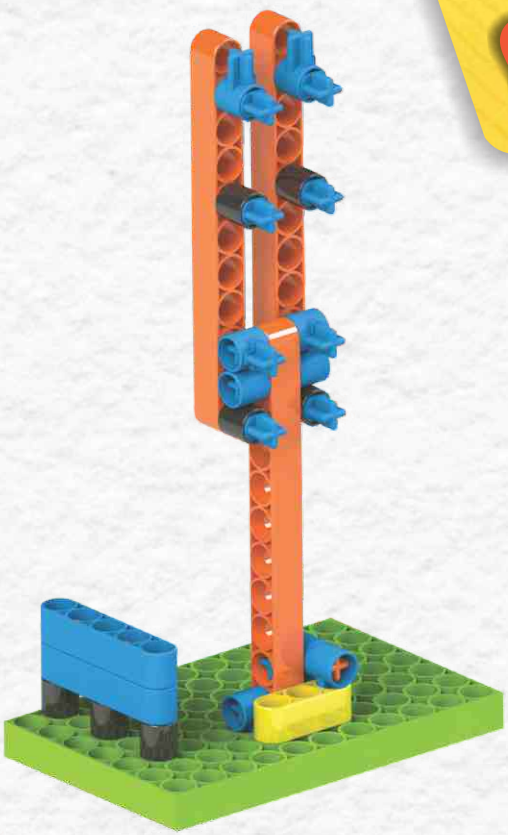
P5 | 1 pc.

TW1 | 4 pcs.

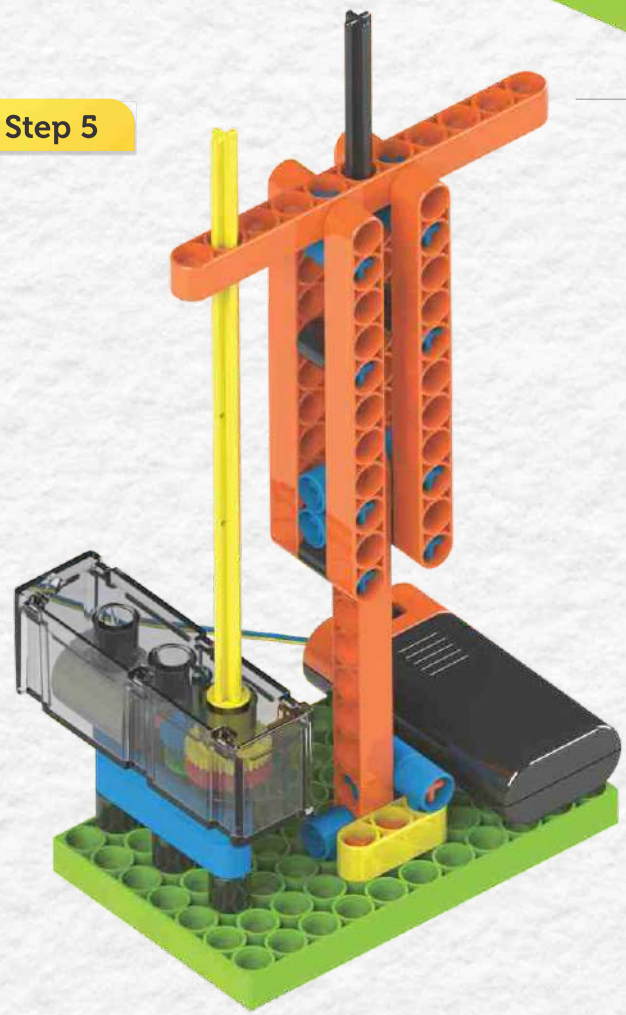
CH2 | 2 pcs.



P11 | 2 pcs.

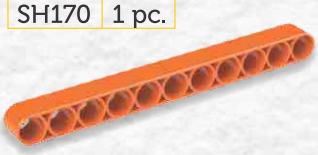


Step 5



SH60 | 1 pc.

SH170 | 1 pc.



P11 | 3 pcs.

Motor with Battery Box

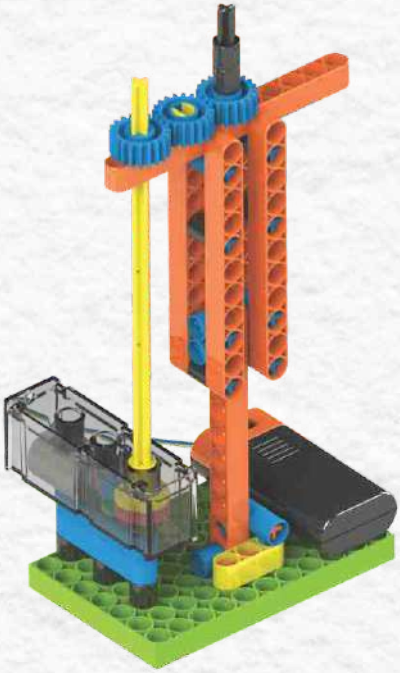
Step 6

TW1 | 2 pcs.

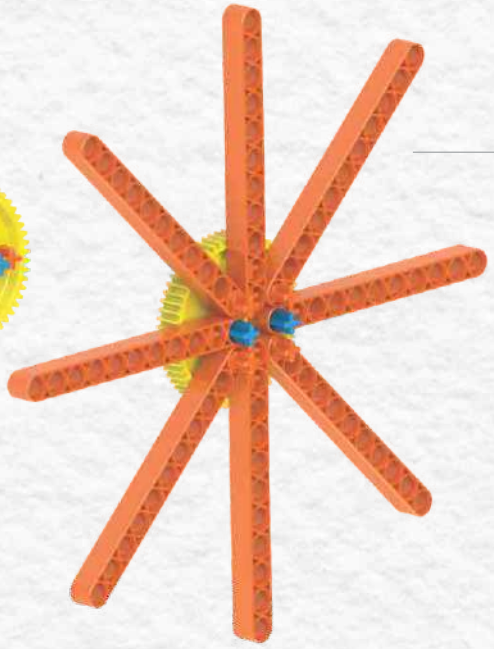
CL2 | 1 pc.

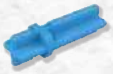
G(20) | 2 pcs.

G(20) Idler | 1 pc.



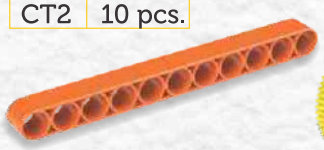
Step 7





CT3 | 2 pcs.

CT2 | 10 pcs.



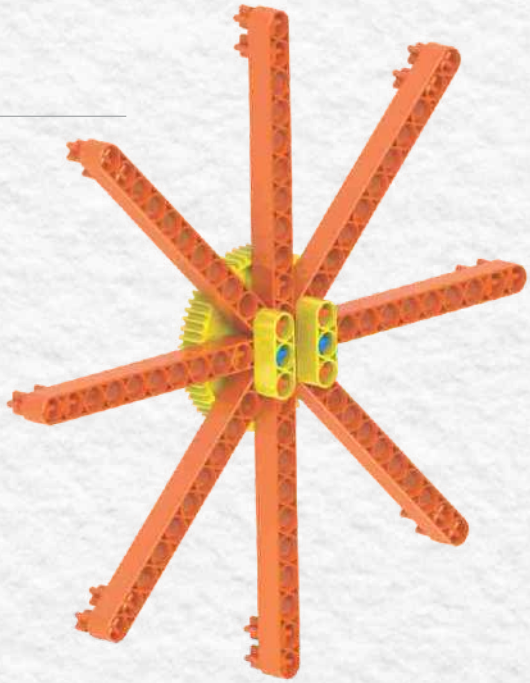
P11 | 8 pcs.

G(60) | 1 pc.

Step 8

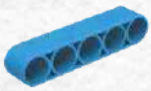
CT2 | 16 pcs.

P3 | 2 pcs.

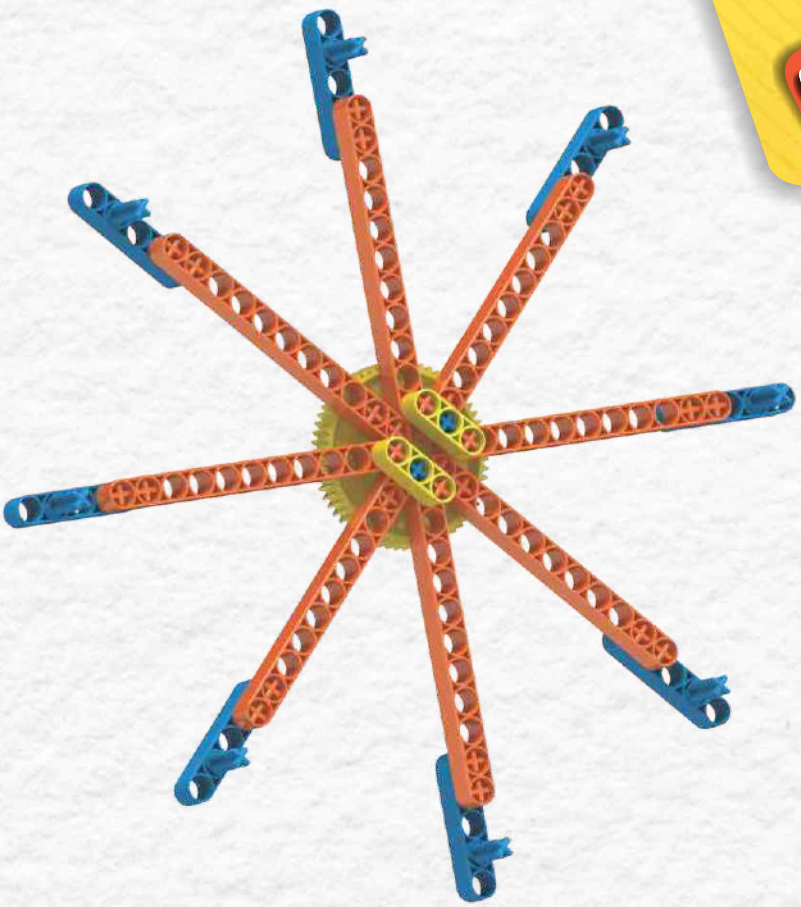


Step 9

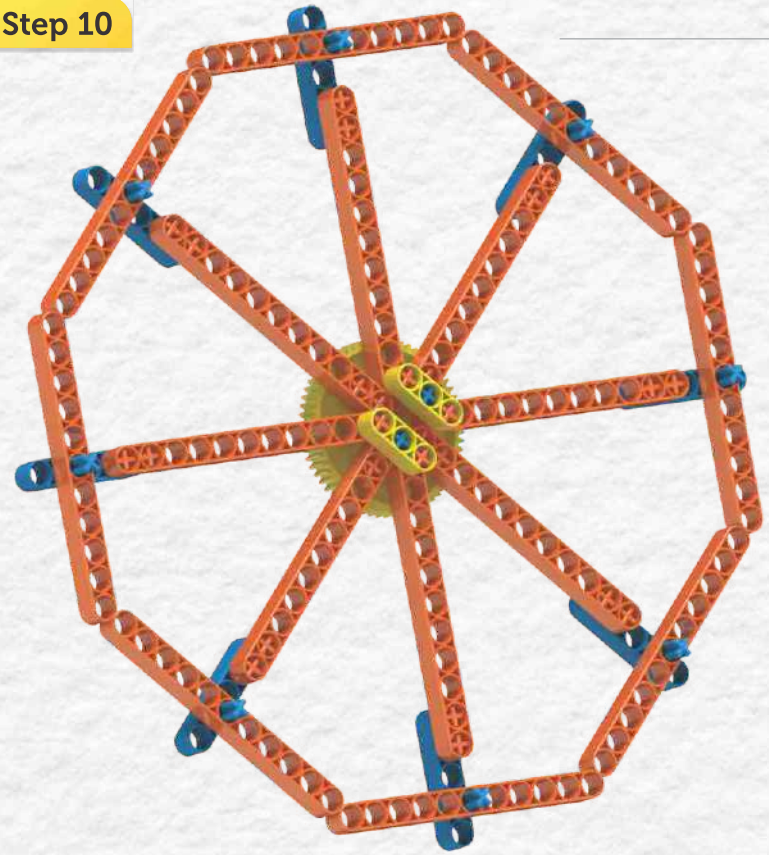
CT3 | 8 pcs.

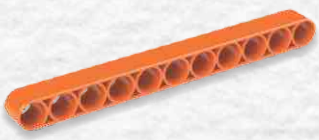


P5 | 8 pcs.



Step 10





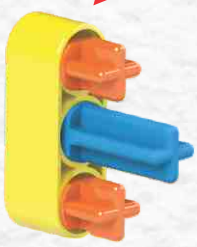
P11 | 8 pcs.

Step 11

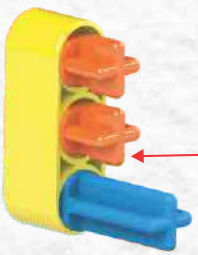
CT2 | 16 pcs.

CT3 | 8 pcs.

P3 | 8 pcs.

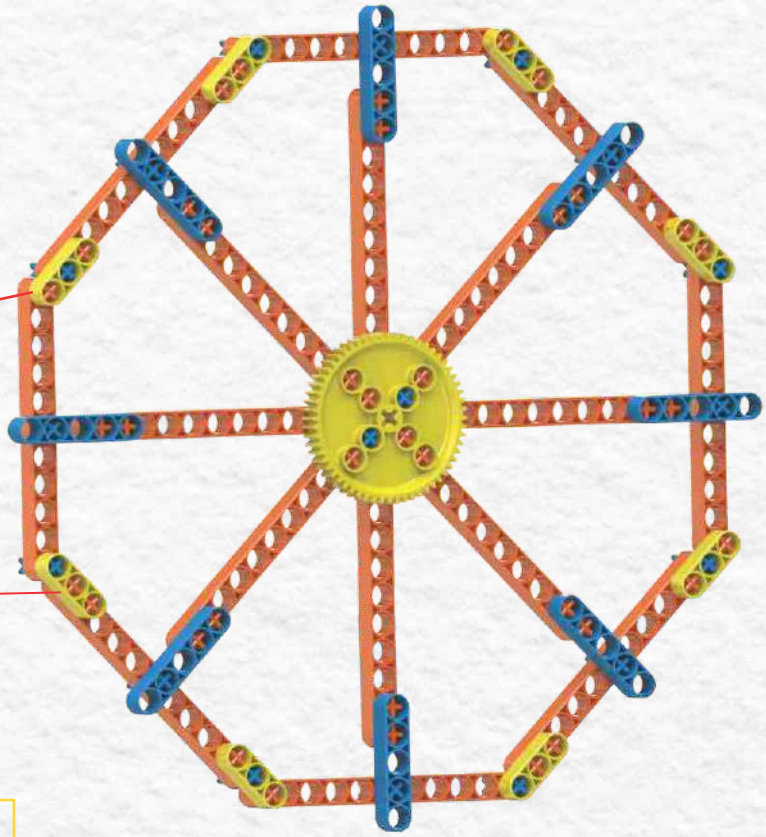


Make 4



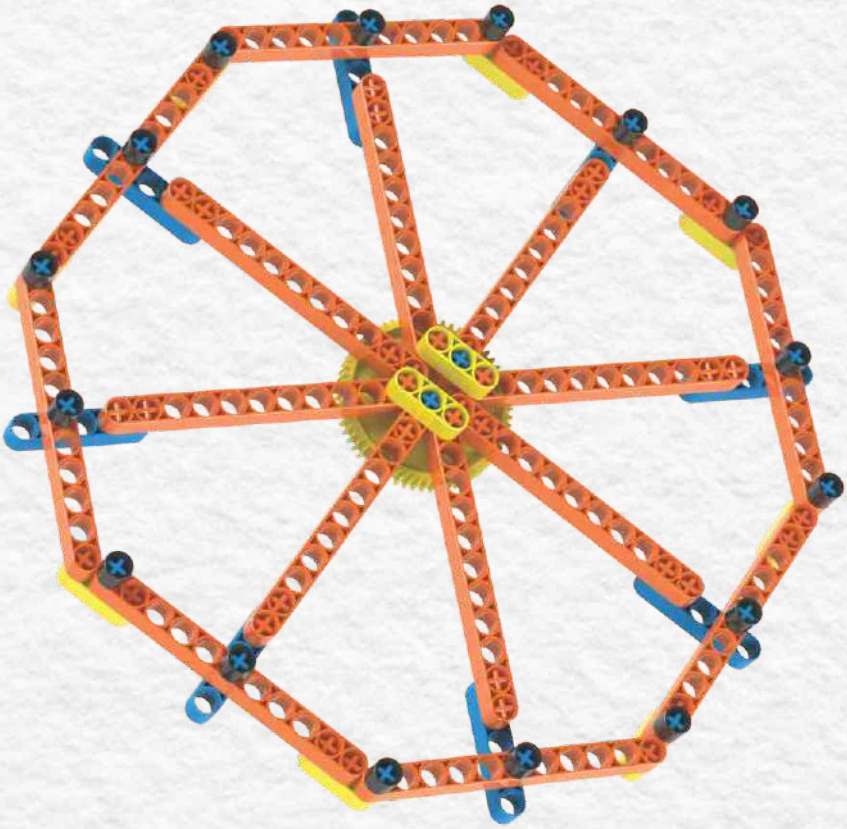
Make 4

Connect alternately with step 10



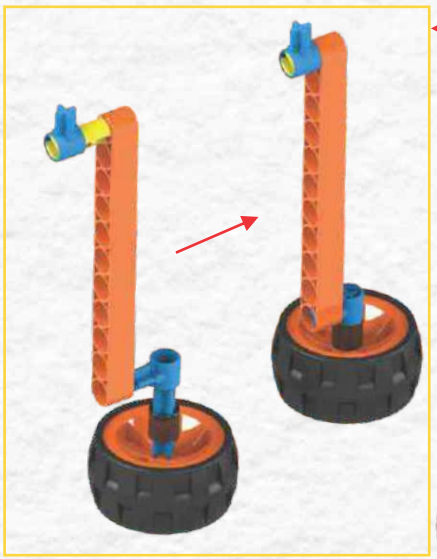
Backside view

Step 12



TW1 | 16 pcs.

Step 13



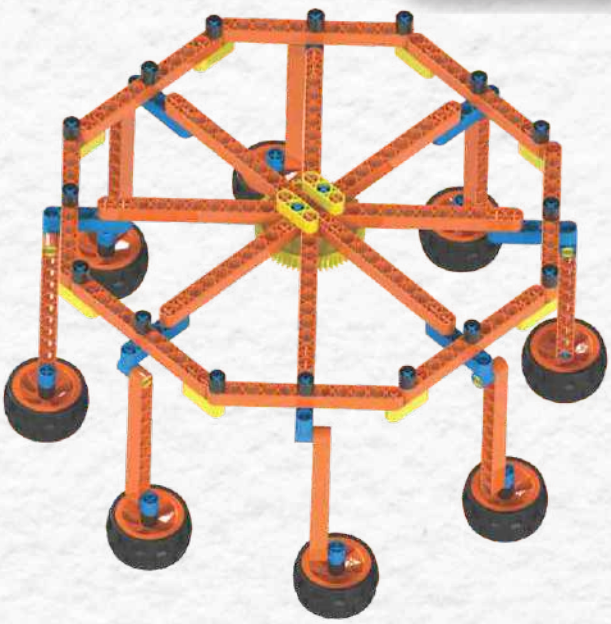
Make 8

TW1 | 8 pcs.

CL2 | 8 pcs.

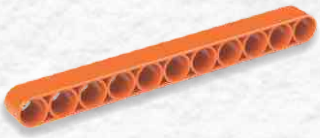
CT3 | 8 pcs.

CH2 | 16 pcs.



Connect with Step 12

Wheels | 8 pcs.



P11 | 8 pcs.

Step 14

Assembly of
Step 13 and Step 6

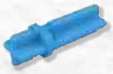
Now replace the gears as shown in figure in step 6 and see what happen! Is there any change in speed?

Model 3

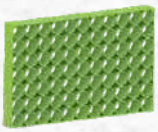
Step 1

CH2 | 4 pcs.

CT2 | 8 pcs.

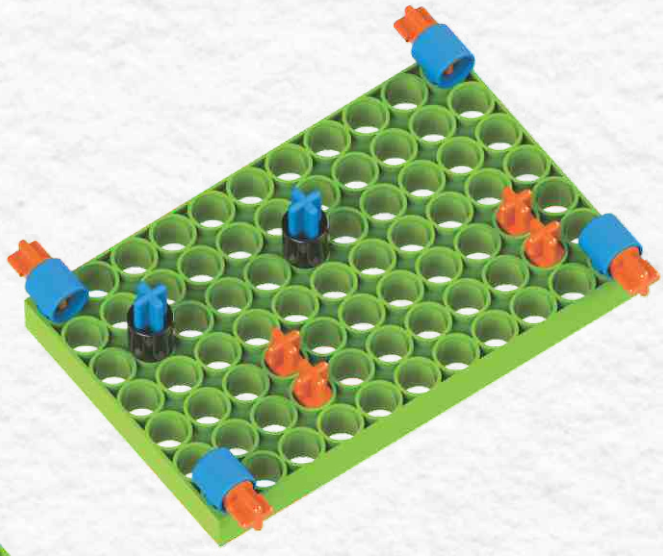


CT3 | 2 pcs.

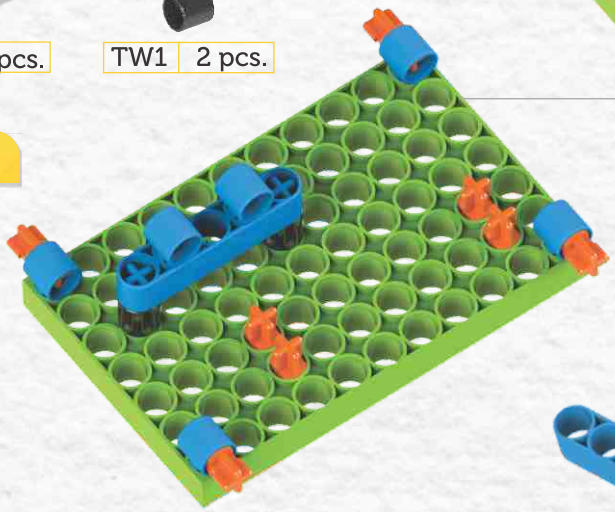


P7X11 | 1 pc.

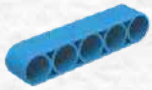
TW1 | 2 pcs.



Step 2



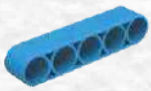
CH2 | 2 pcs.



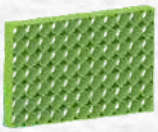
P5 | 1 pc.

Step 3

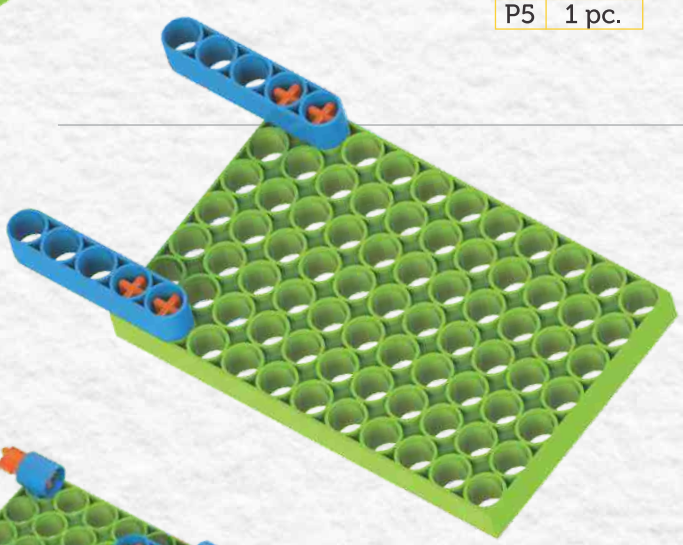
CT2 | 4 pcs.



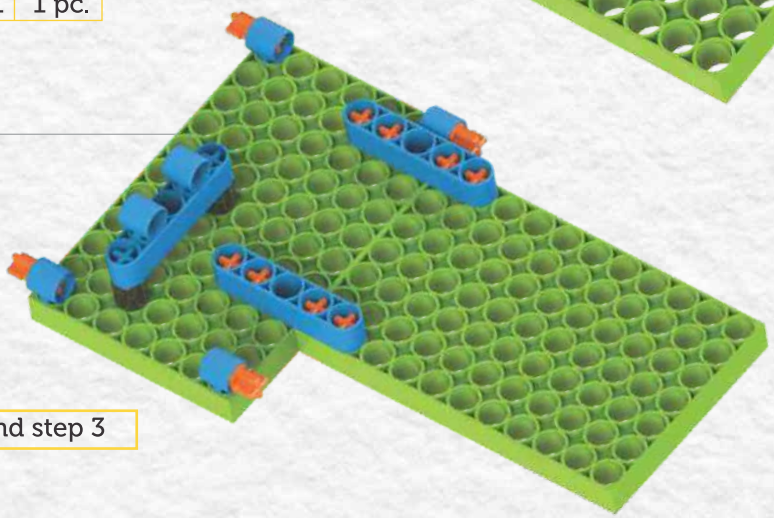
P5 | 2 pcs.



P7X11 | 1 pc.



Step 4

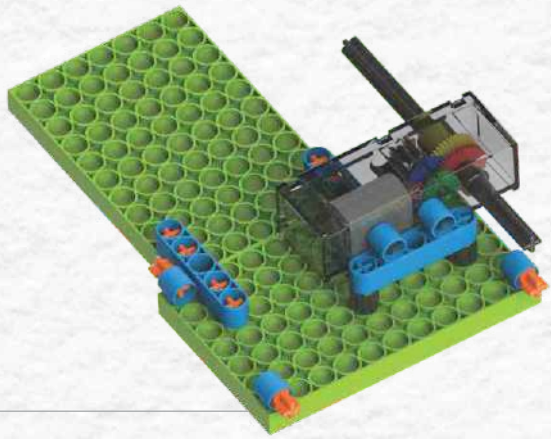


Assembly of step 2 and step 3

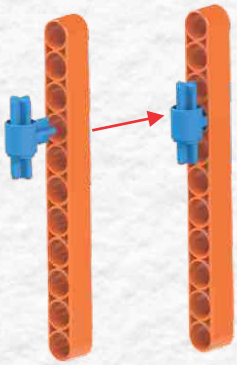
Step 5

Motor with Battery Box

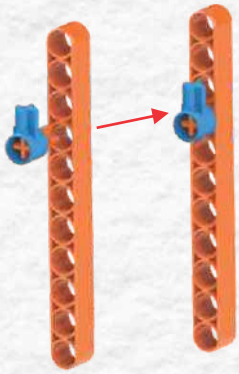
SH60 | 1 pc.



Step 6



Make 1

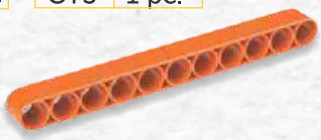


Make 3

CH2 | 4 pcs.

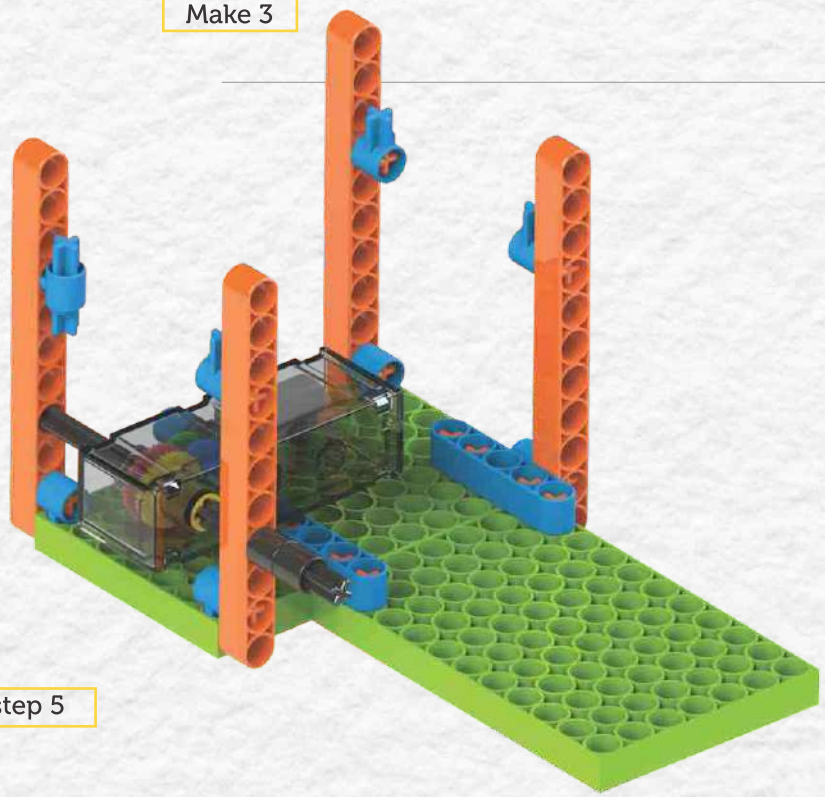
CT3 | 1 pc.

CT2 | 3 pcs.



P11 | 4 pcs.

Step 7



TW1 | 2 pcs.

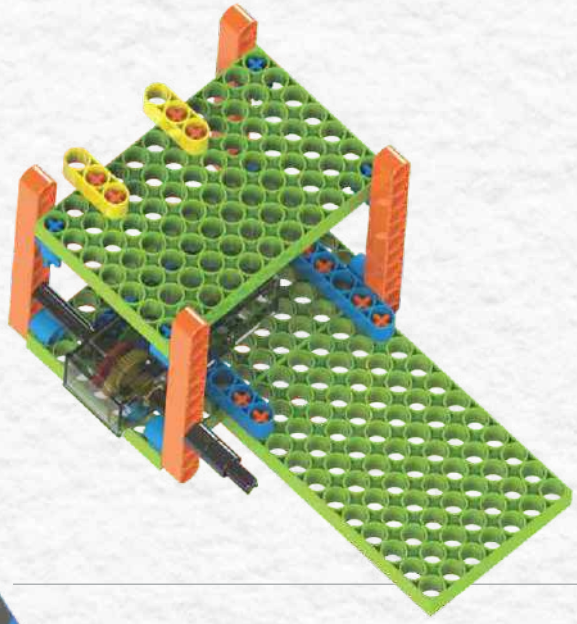
Assembly of step 6 and step 5

Step 8

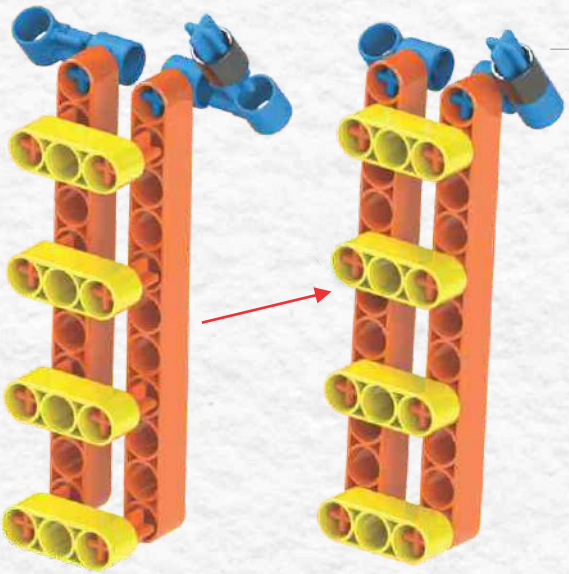
CT2 | 4 pcs.

P3 | 2 pcs.

P7X11 | 1 pc.



Step 9



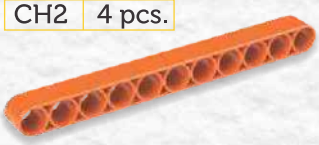
CT2 | 8 pcs.

TW1 | 1 pc.

P3 | 4 pcs.

CH2 | 4 pcs.

CT3 | 1 pcs.



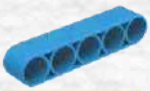
P11 | 2 pcs.

Step 10

Assembly of step 9 and step 8

CL2 | 1 pc.

G(60) | 1 pc.

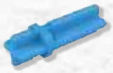


P5 | 1 pc.

Step 11

CT2 | 2 pcs.

P5 | 3 pcs.

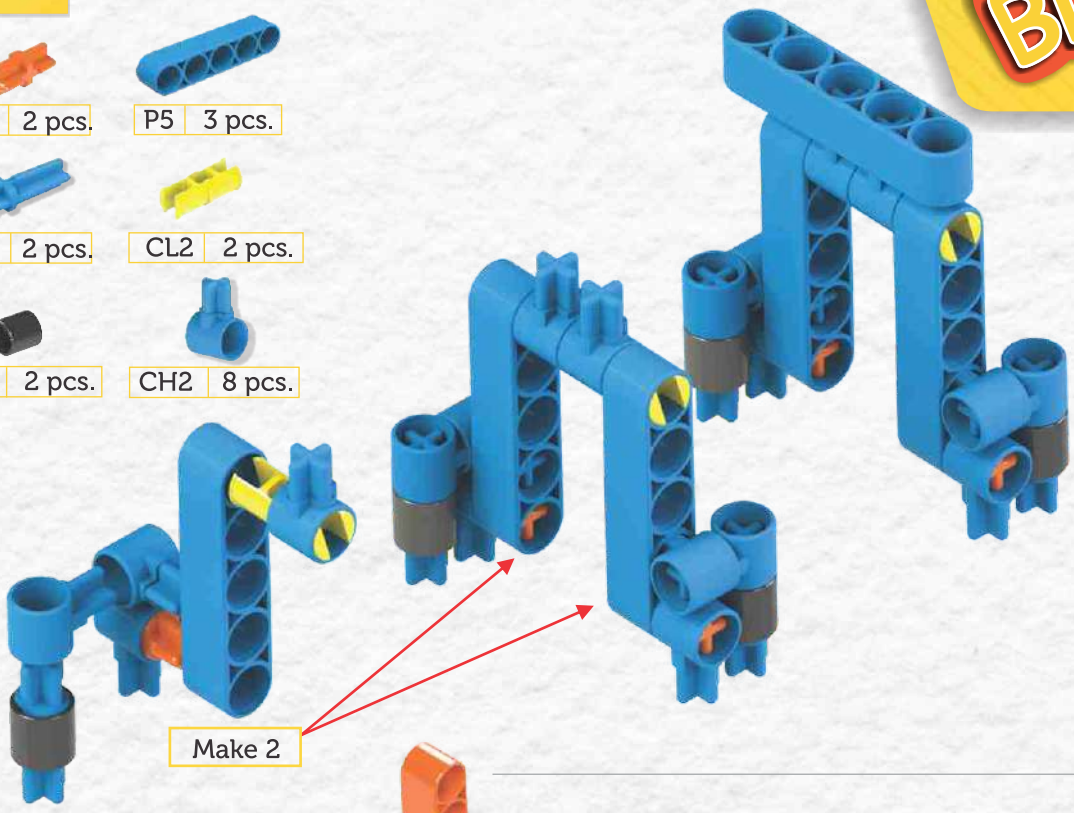


CT3 | 2 pcs.

CL2 | 2 pcs.

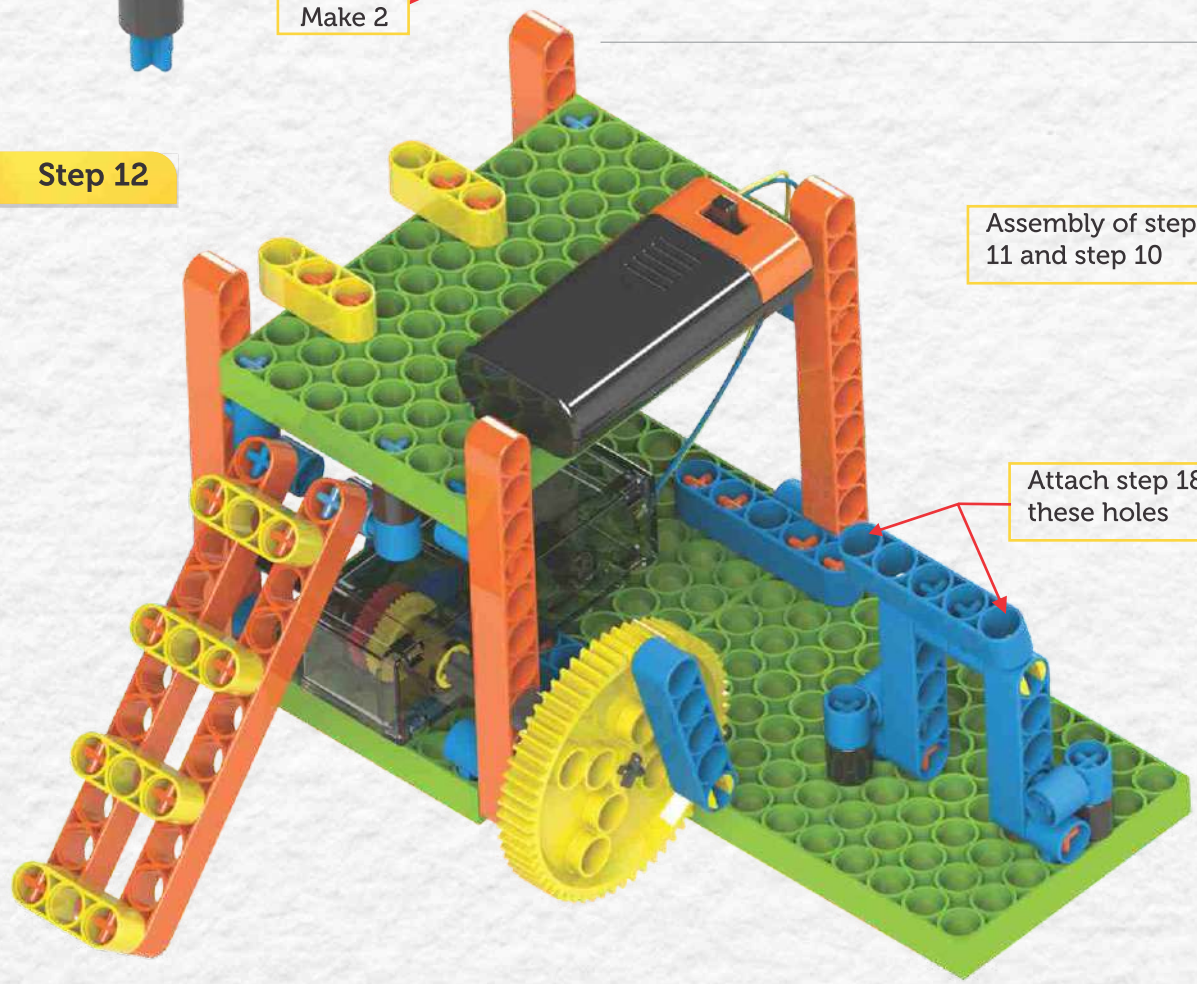
TW1 | 2 pcs.

CH2 | 8 pcs.



Make 2

Step 12



Assembly of step 11 and step 10

Attach step 18 on these holes

Step 13

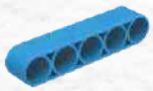
CT2 | 10 pcs.

CT3 | 8 pcs.

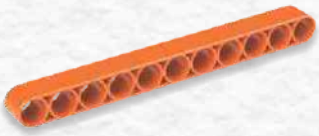
TW1 | 8 pcs.

CL2 | 1 pc.

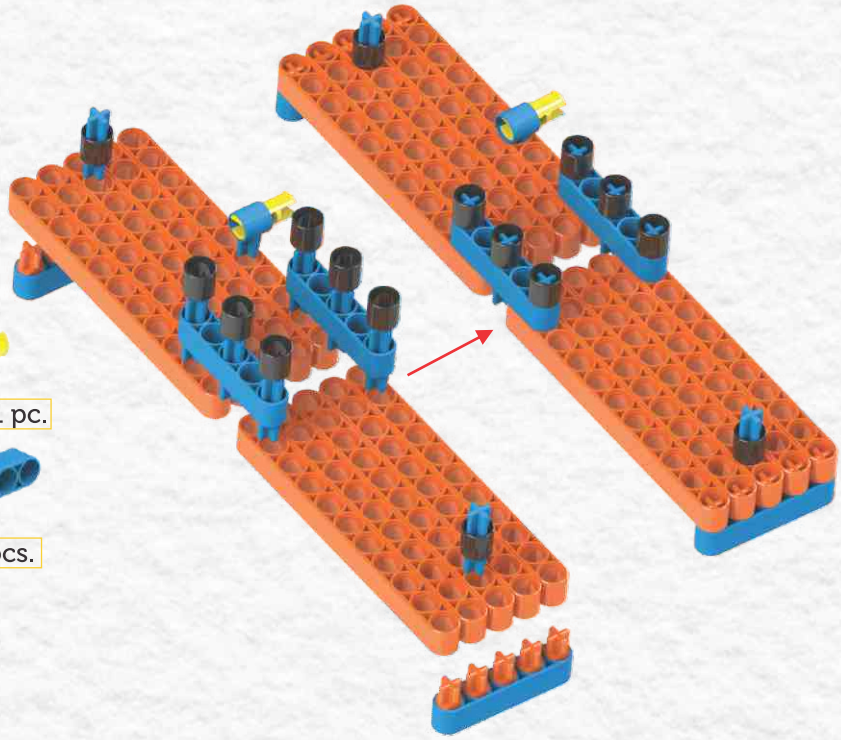
CH2 | 1 pc.



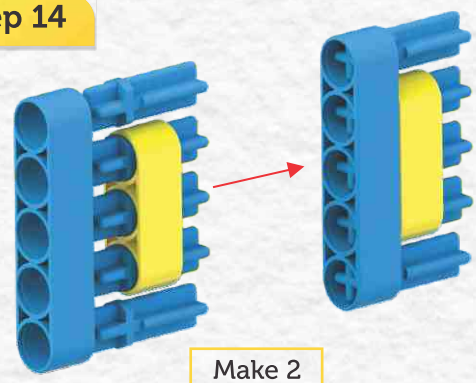
P5 | 4 pcs.



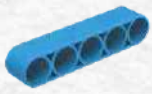
P11 | 10 pcs.



Step 14



Make 2



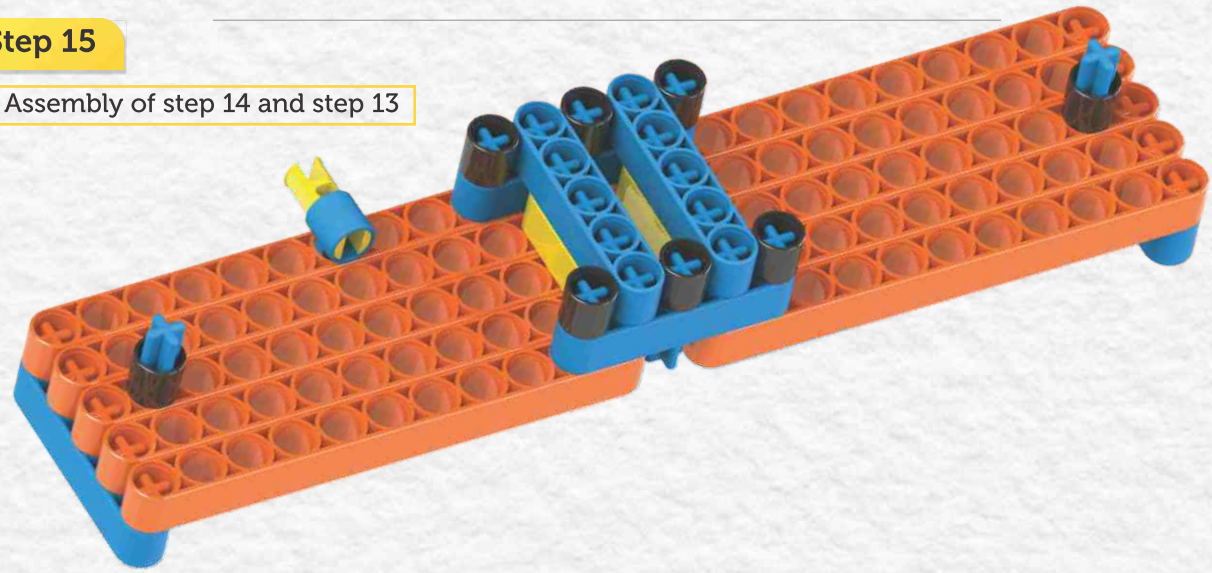
P5 | 2 pcs.

CT3 | 10 pcs.

P3 | 2 pcs.

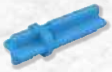
Step 15

Assembly of step 14 and step 13



Step 16

CT2 | 4 pcs.

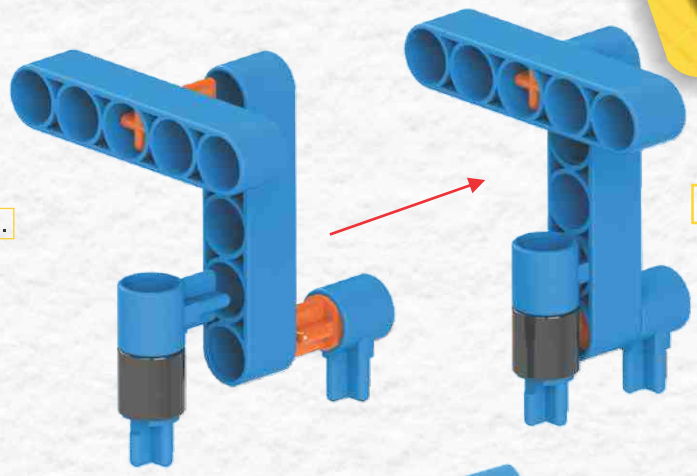


CT3 | 2 pcs.

TW1 | 2 pcs.

CH2 | 4 pcs.

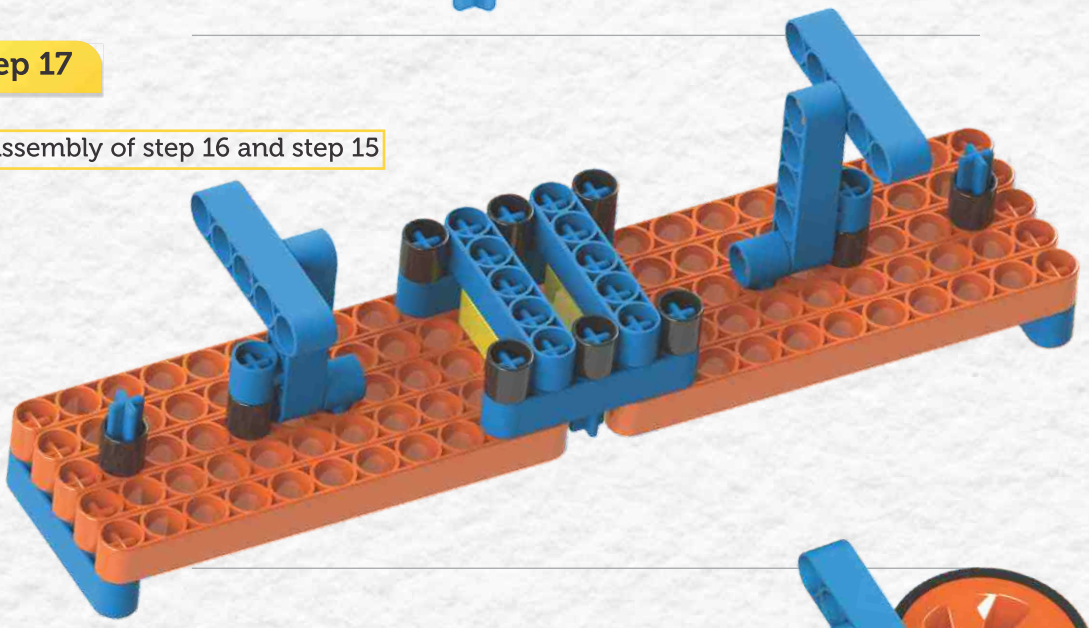
P5 | 4 pcs.



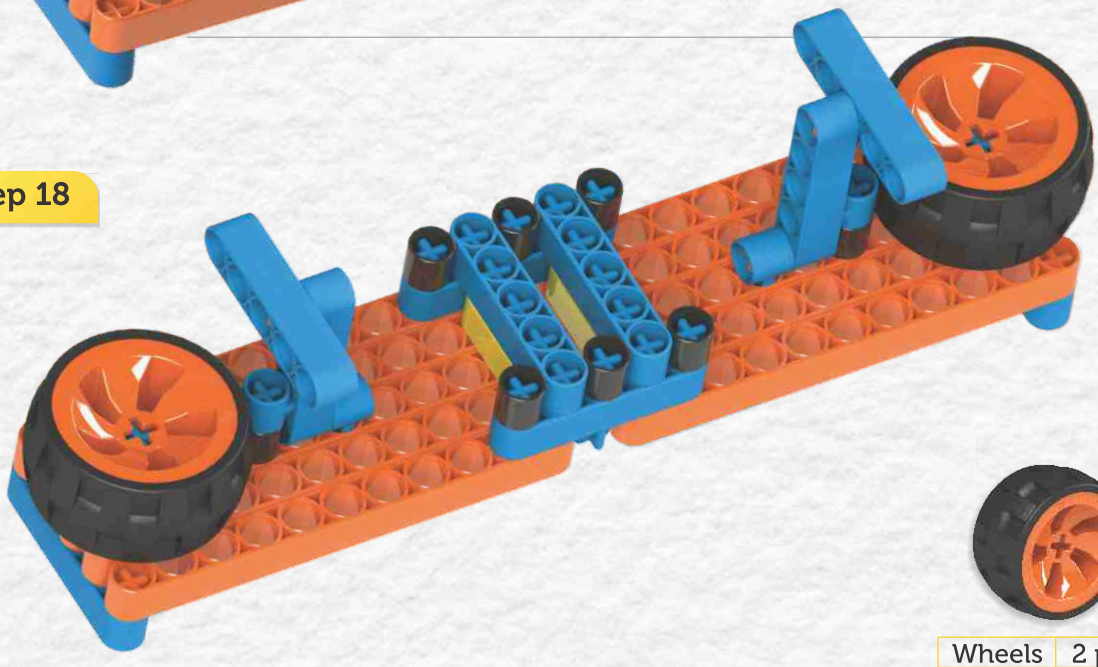
Make 2

Step 17

Assembly of step 16 and step 15



Step 18



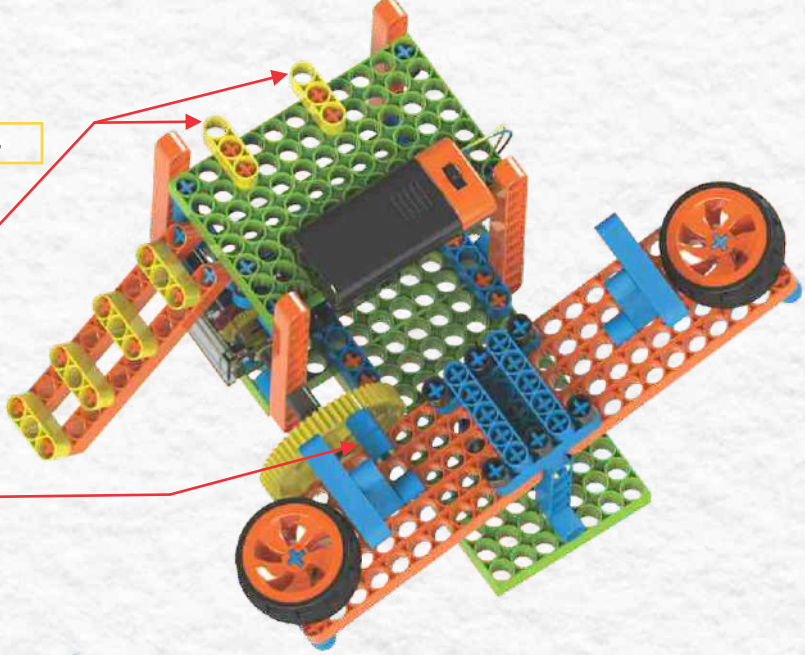
Wheels | 2 pcs.

Step 19

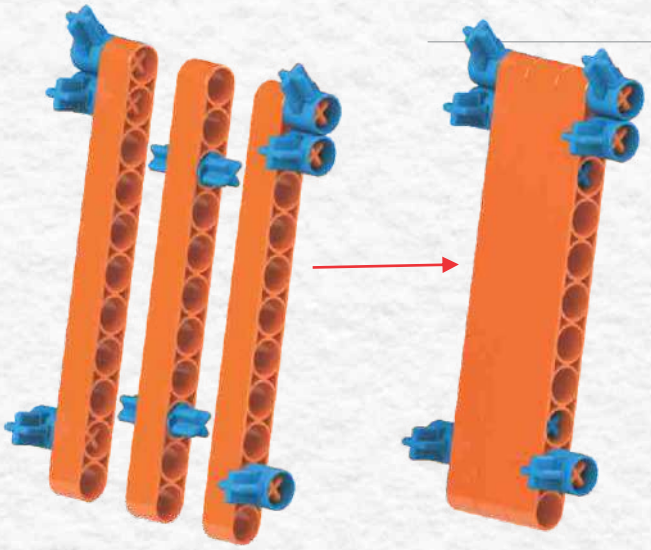
Assembly of step 18 and step 12

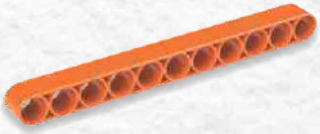
Attach step 22 on these holes

Connect CL2 with P5



Step 20





P11 | 3 pcs.

CT3 | 2 pcs.

CH2 | 6 pcs.

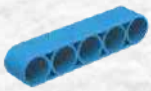
CT2 | 6 pcs.

Step 21

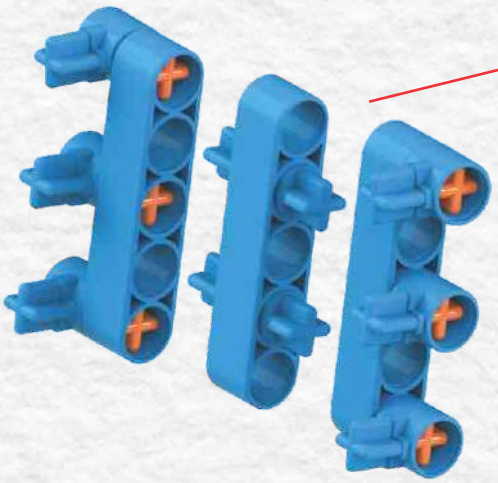
CT2 | 6 pcs.

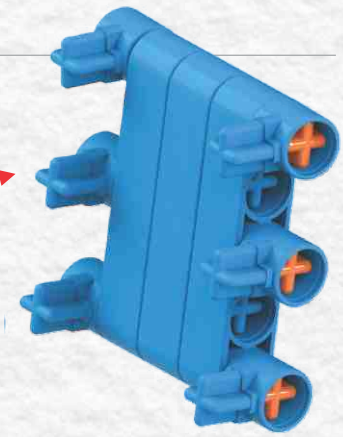
CT3 | 2 pcs.

CH2 | 6 pcs.

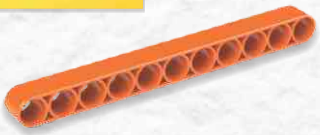


P5 | 3 pcs.



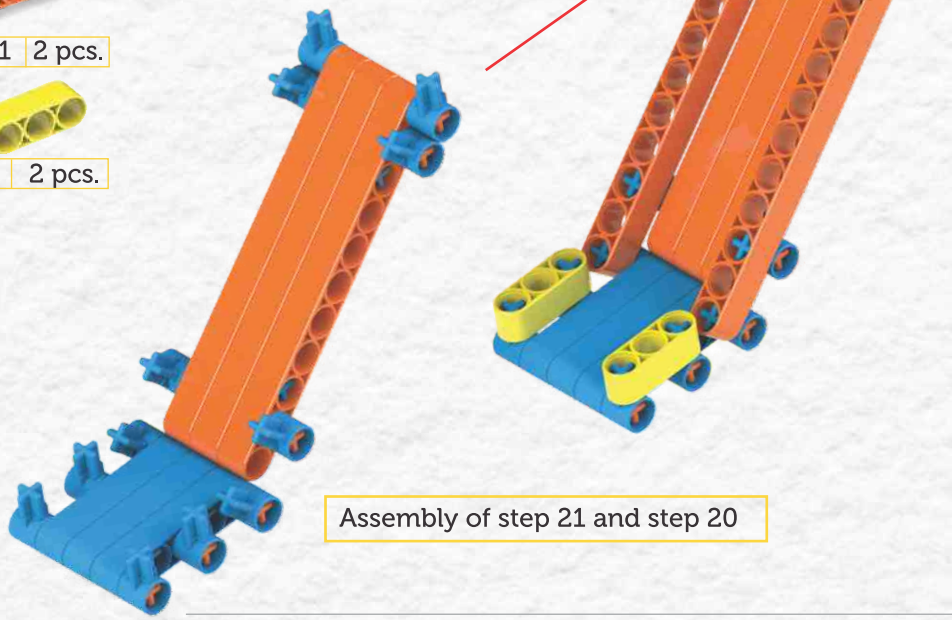


Step 22



P11 2 pcs.

P3 2 pcs.



Assembly of step 21 and step 20

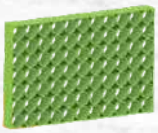
Step 23

Assembly of step 22 and step 19

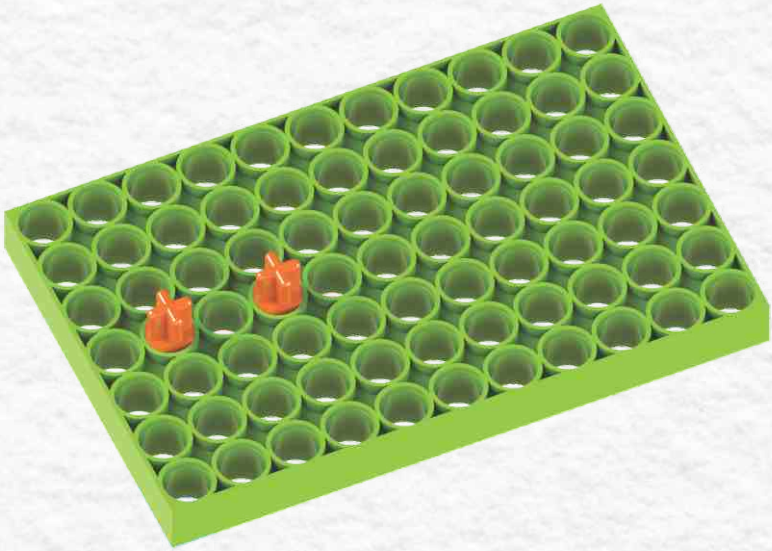
Model 4

Step 1

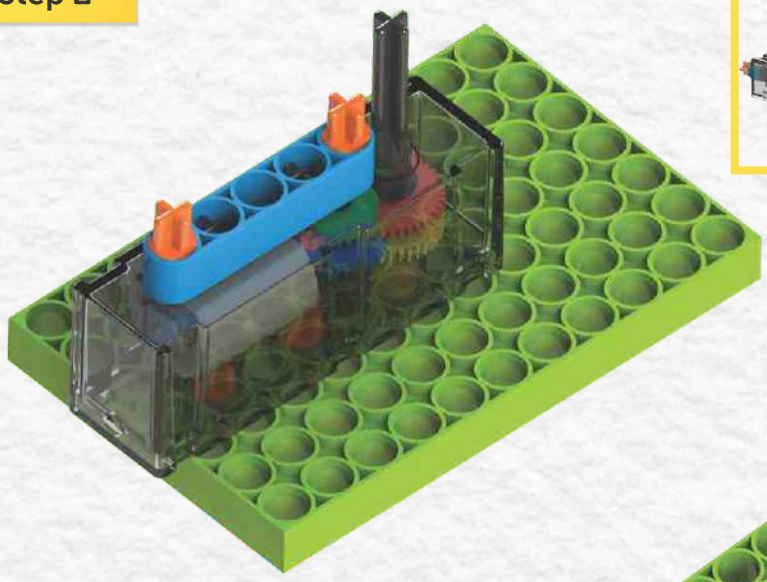
CT2 | 2 pcs.

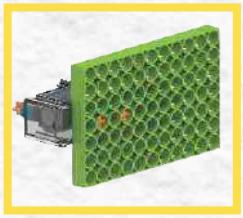


P7X11 | 1 pc.



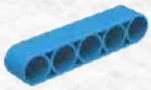
Step 2





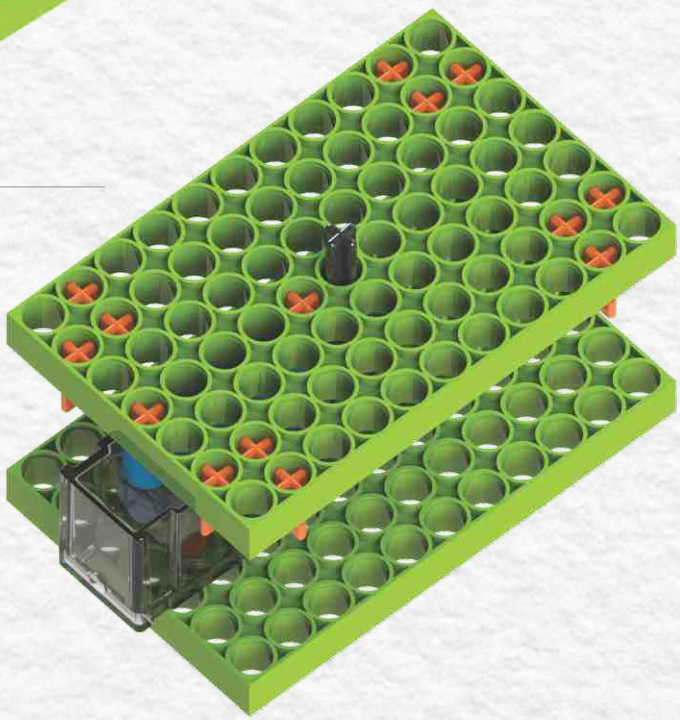
CT2 | 2 pcs.

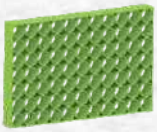
Motor with Battery Box



P5 | 1 pc.

Step 3



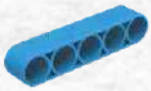


P7X11 | 1 pcs.

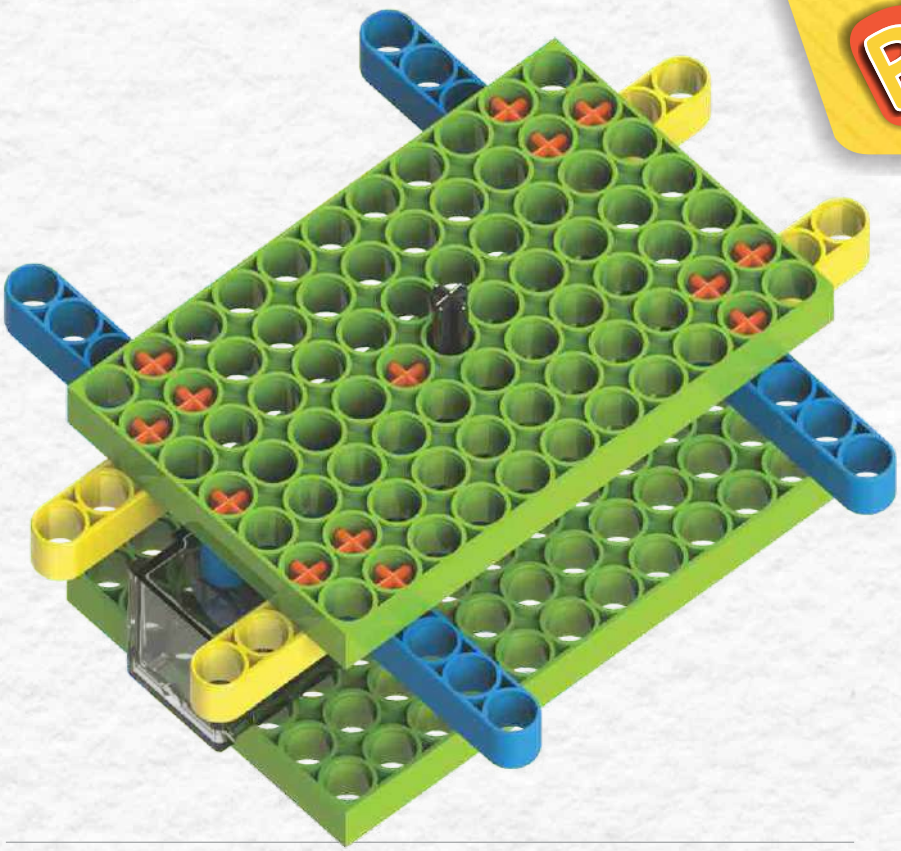
CT2 | 12 pcs.

Step 4

P3 | 4 pcs.



P5 | 4 pcs.

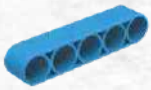


Step 5

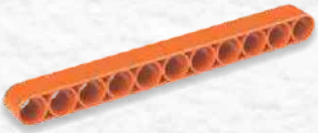
CT2 | 20 pcs.

Step 6

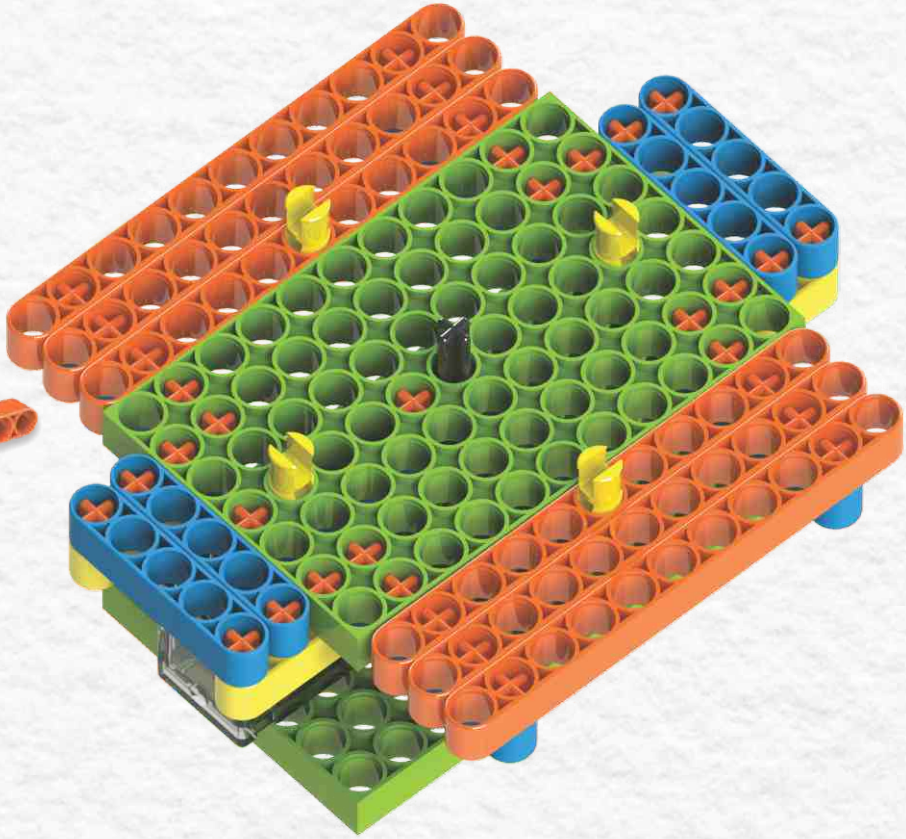
CL2 | 4 pcs.



P5 | 4 pcs.



P11 | 6 pcs.



Step 7

G(60) | 1 pc.

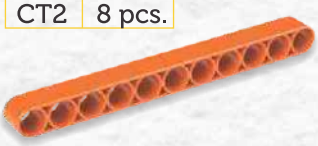
G(20) Idler | 4 pcs.

CT3 | 4 pcs.

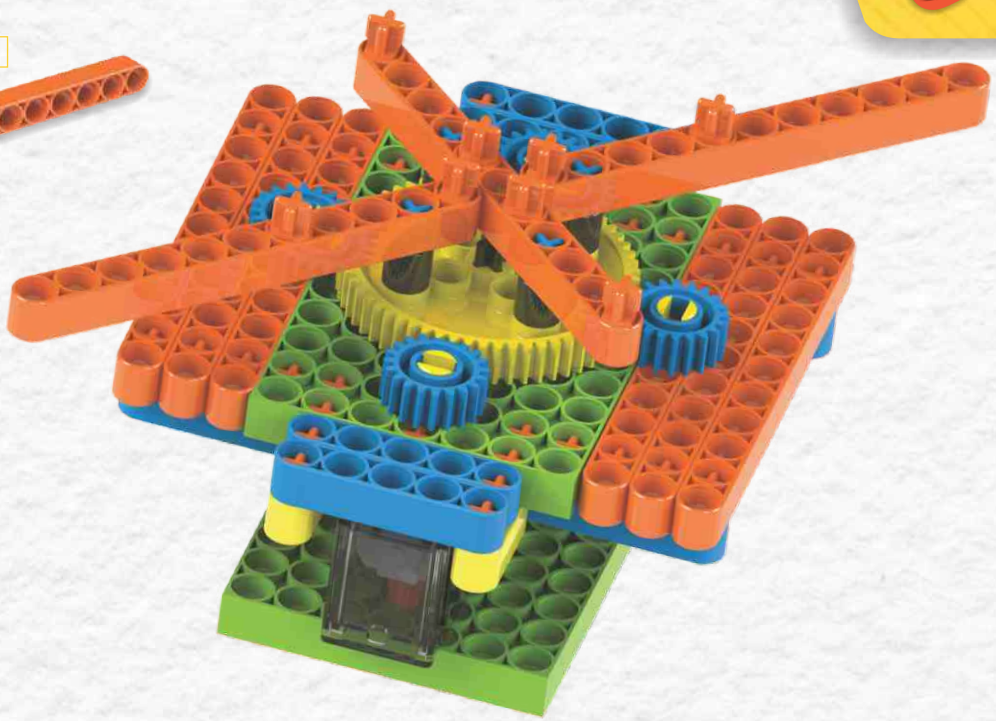
TW1 | 4 pcs.

Step 8

CT2 | 8 pcs.

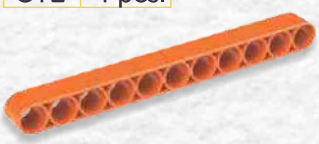


P11 | 3 pcs.

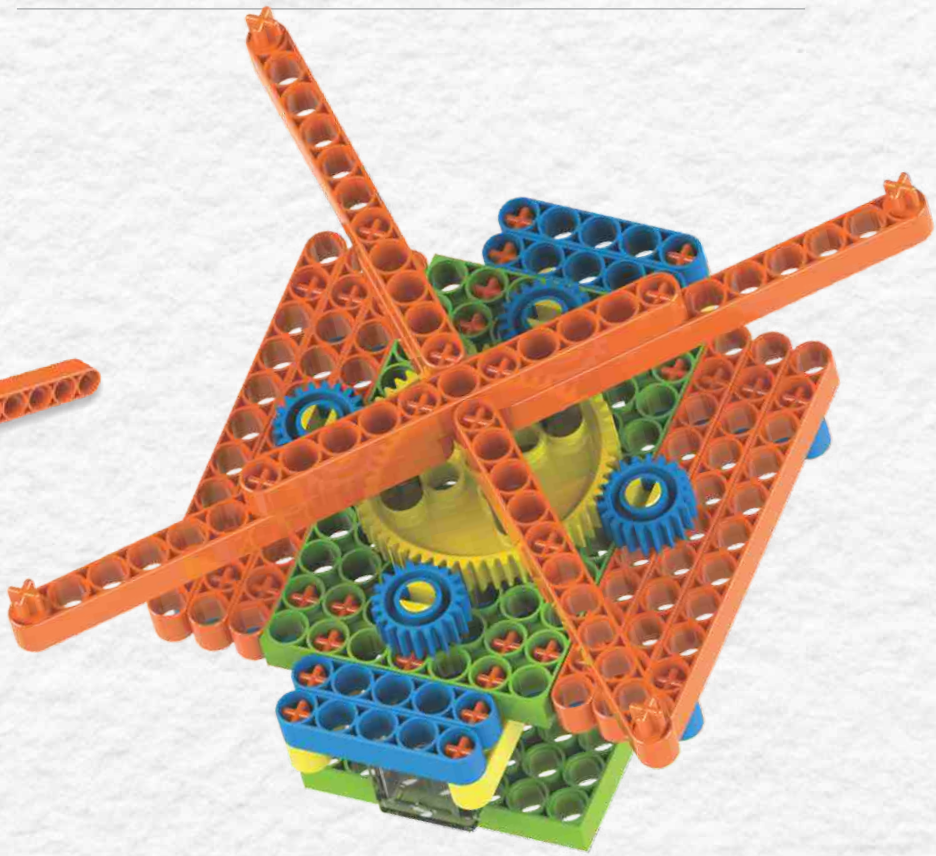


Step 9

CT2 | 4 pcs.



P11 | 3 pcs.



Step 10

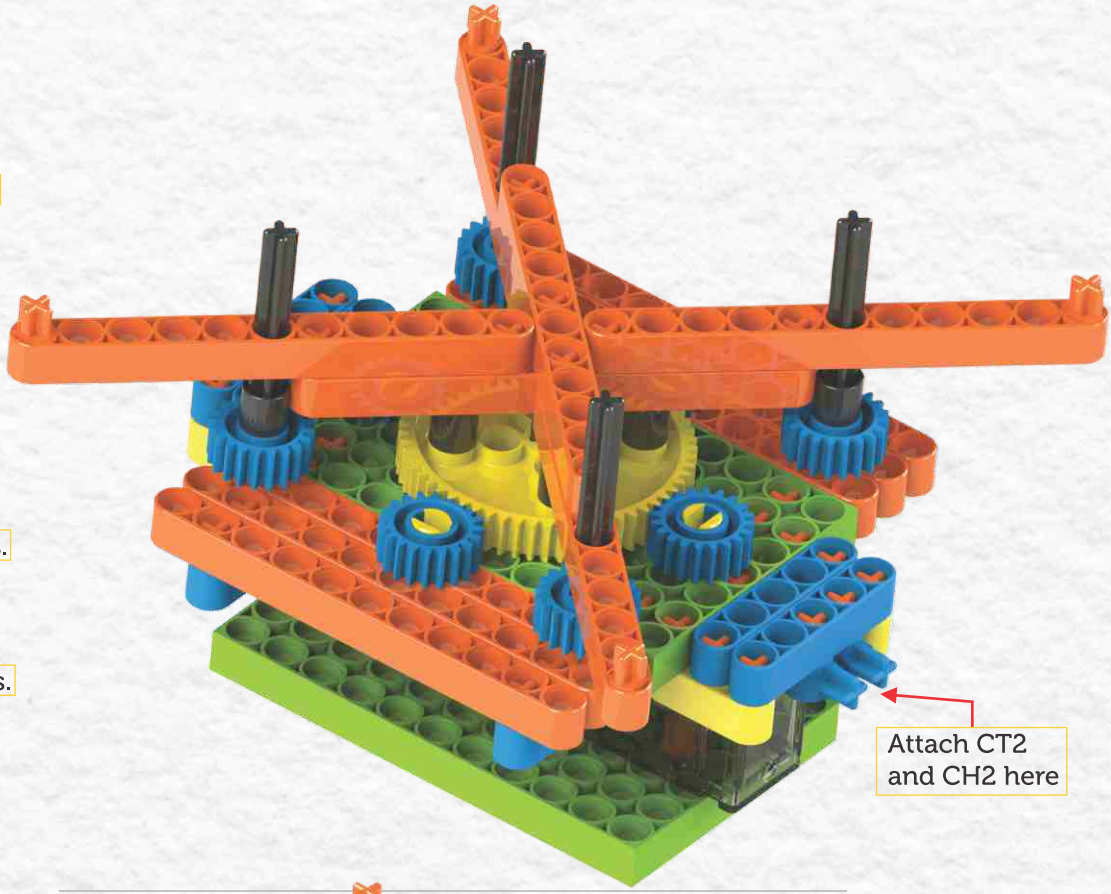
CH2 | 2 pcs.

CT2 | 2 pcs.

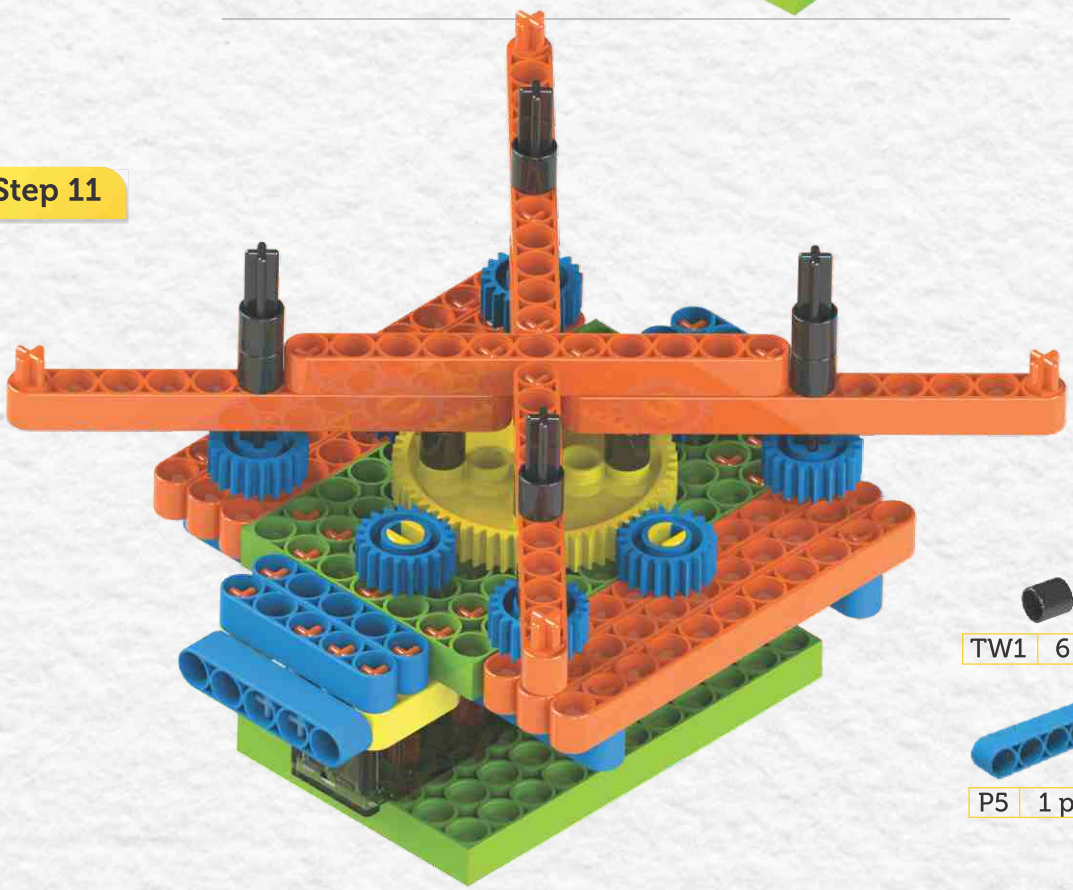
TW1 | 2 pcs.

SH60 | 4 pcs.

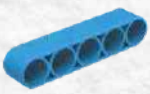
G(20) | 4 pcs.



Step 11



TW1 | 6 pcs.

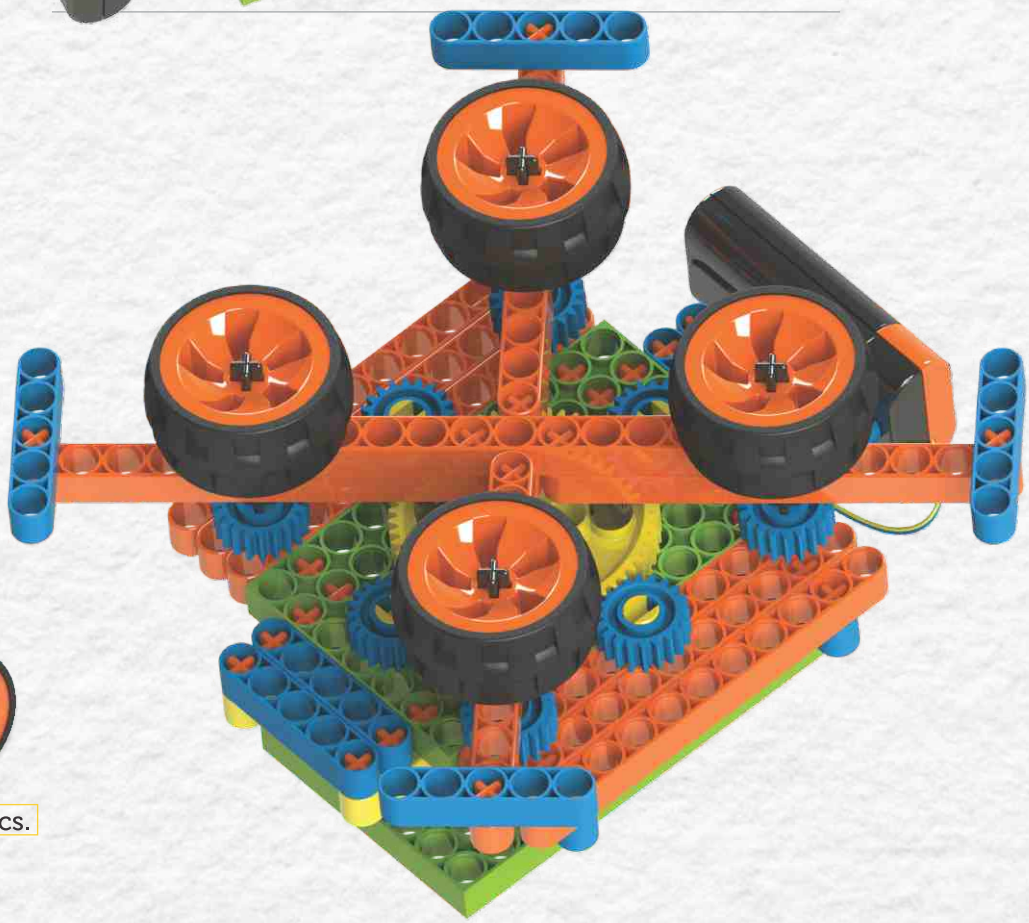


P5 | 1 pcs.

Step 12

P5 | 4 pcs.

Step 13



Wheels | 4 pcs.

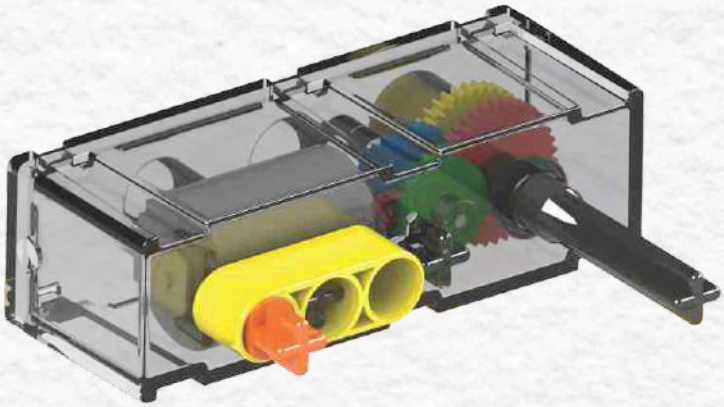
Model 5

Step 1

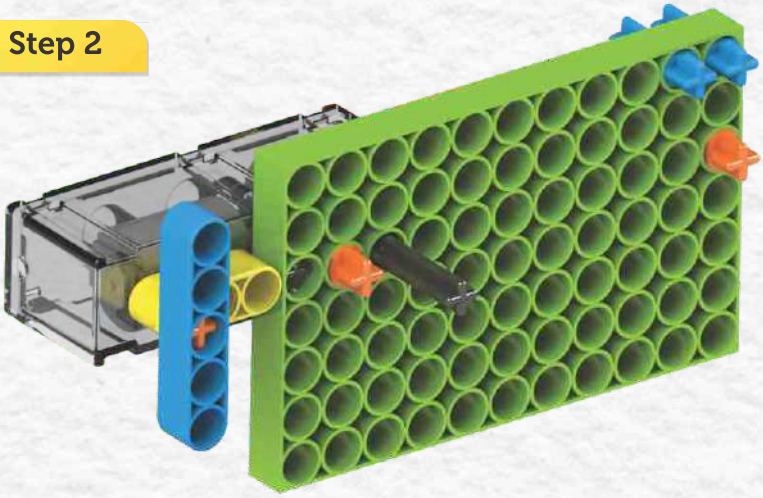
CT2 | 1 pc.

P3 | 1 pc.

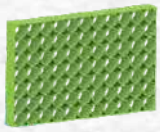
Motor with Battery Box



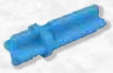
Step 2



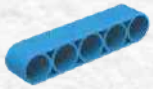
CT2 | 2 pcs.



P7X11 | 1 pc.



CT3 | 2 pcs.



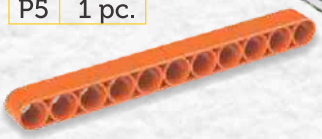
P5 | 1 pc.

Step 3

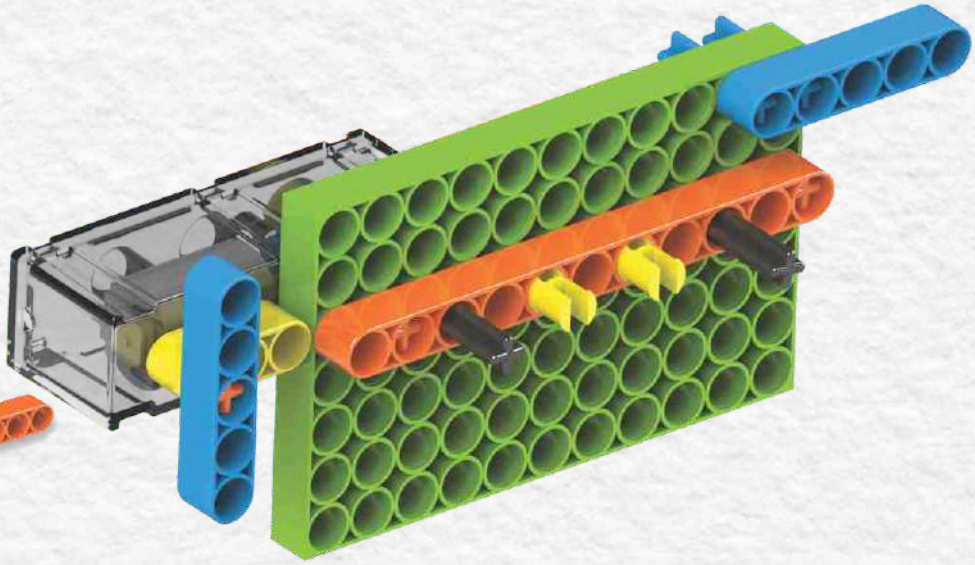
CL2 | 2 pcs.

SH60 | 1 pc.

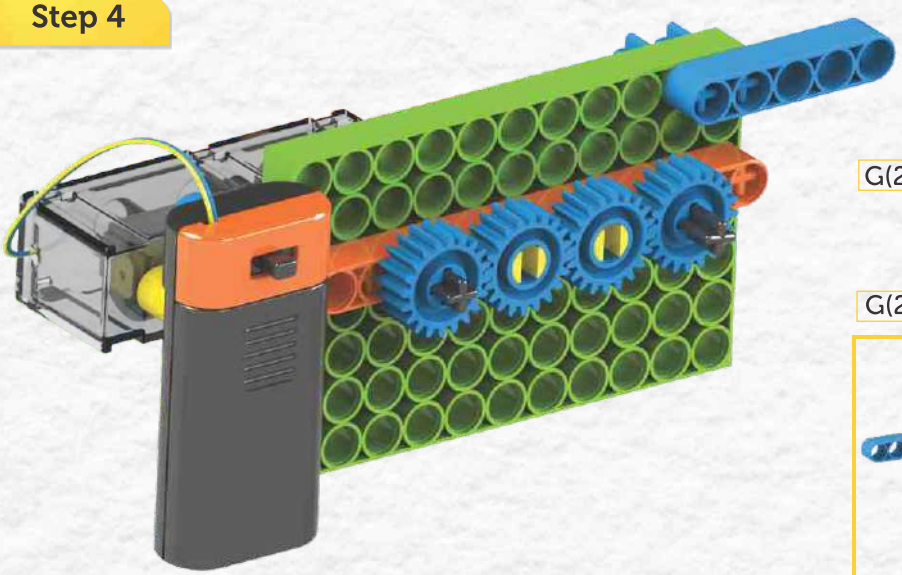
P5 | 1 pc.



P11 | 1 pc.

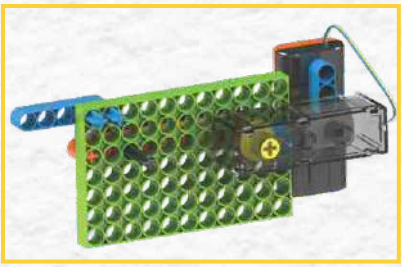


Step 4



G(20) 2 pcs.

G(20) Idler 2 pcs.



Step 5

CL2 2 pcs.

G(60) 1 pc.

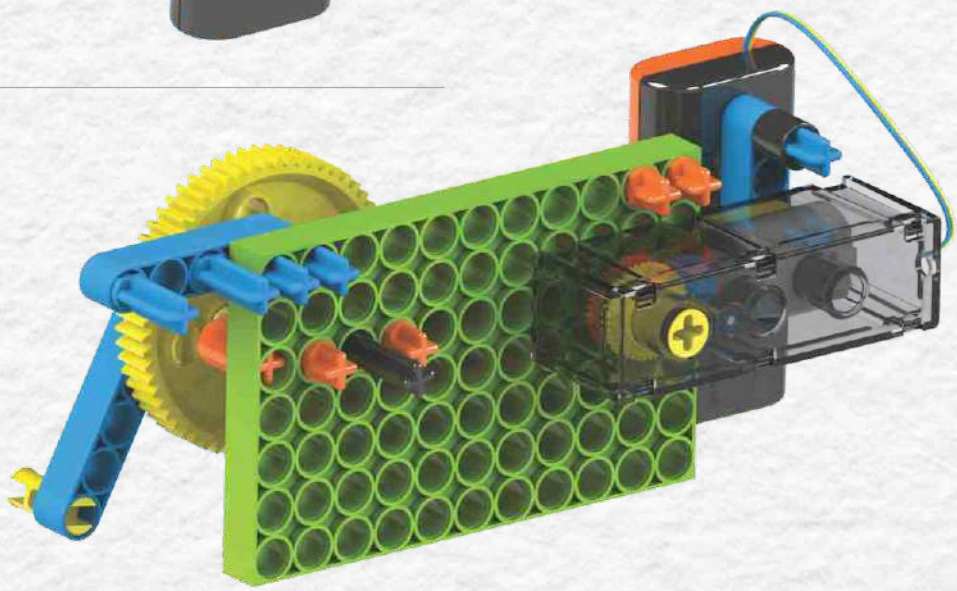
P5 1 pc.

Step 6

CT2 4 pcs.

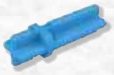
CT3 3 pcs.

TW1 1 pc.

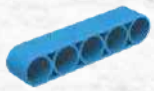


Step 7

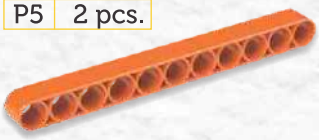
P3 | 1 pc.



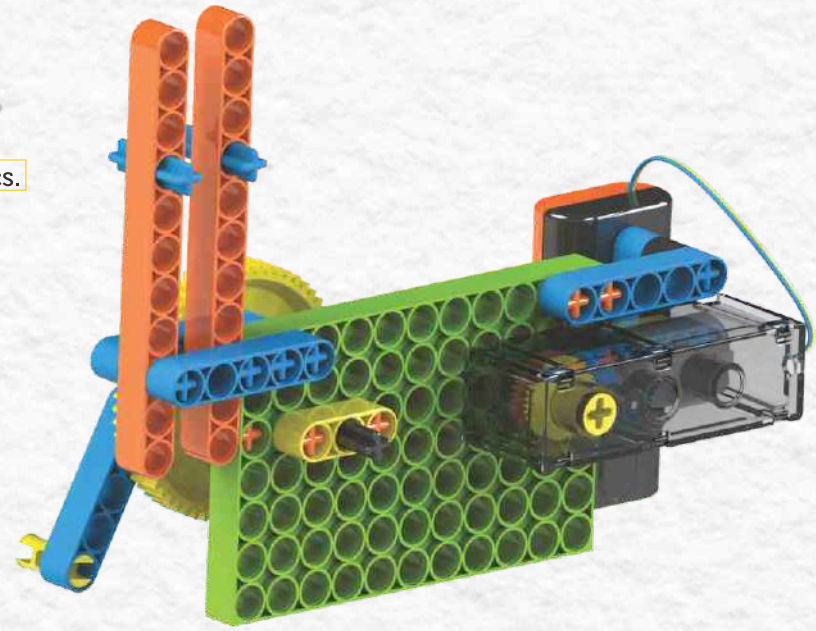
CT3 | 2 pcs.



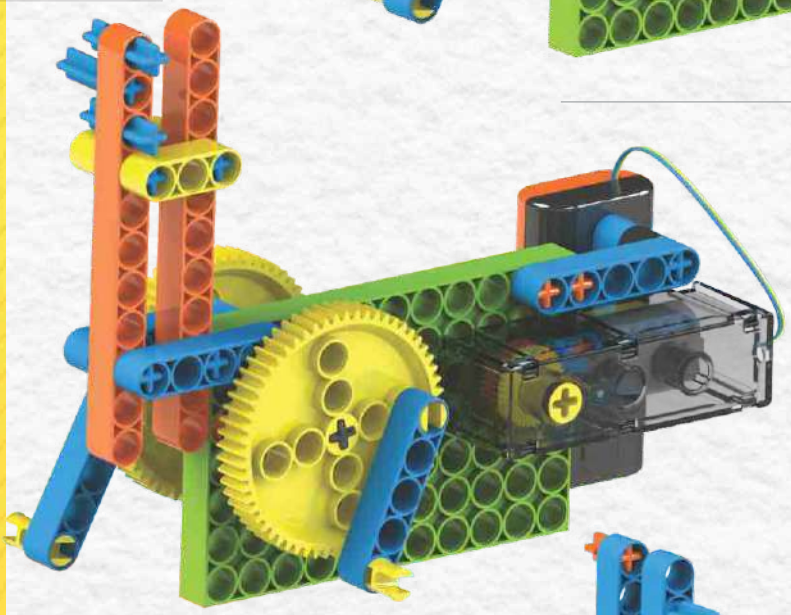
P5 | 2 pcs.



P11 | 2 pcs.



Step 8

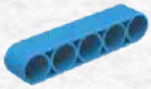


CL2 | 2 pcs.

CT3 | 3 pcs.

G(60) | 1 pc.

P3 | 2 pcs.



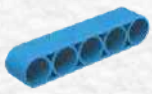
P5 | 1 pc.

Step 9

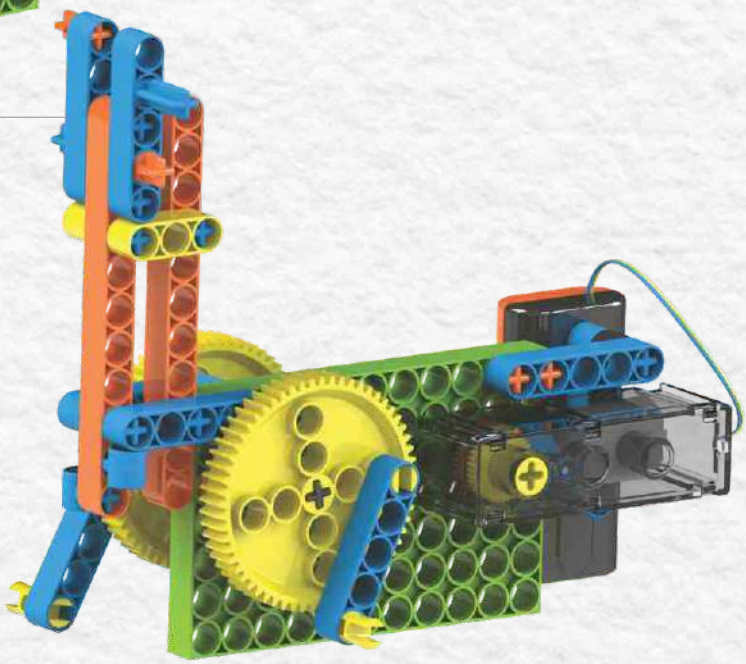
CT2 | 2 pcs.

CT3 | 1 pc.

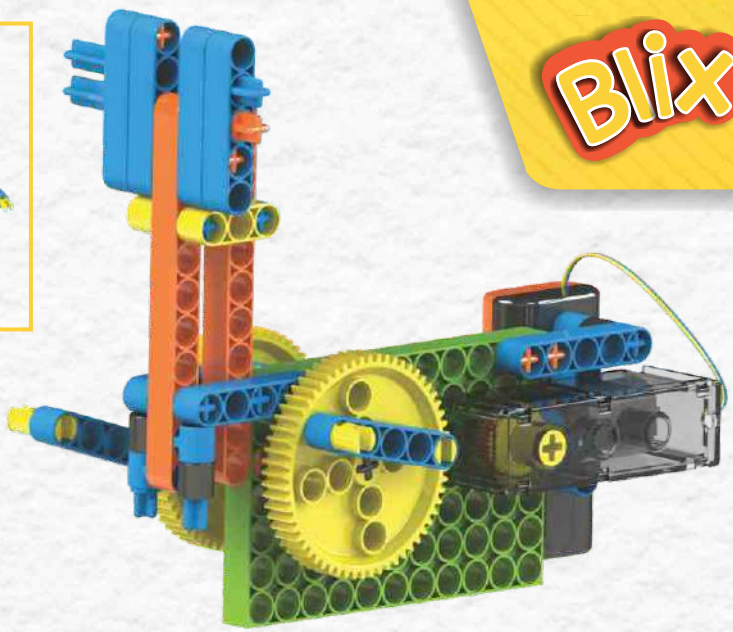
CH2 | 2 pc.



P5 | 2 pcs.



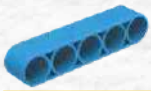
Step 10



TW1 | 2 pcs.

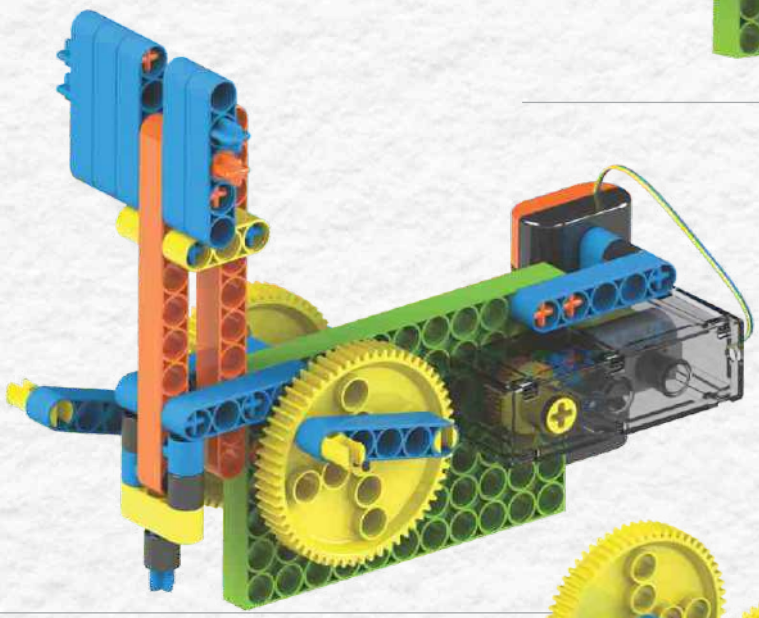
CT2 | 1 pc.

CT3 | 4 pcs.



P5 | 2 pcs.

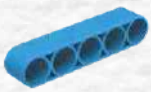
Step 11



TW1 | 1 pc.

CT3 | 1 pc.

P3 | 1 pc.

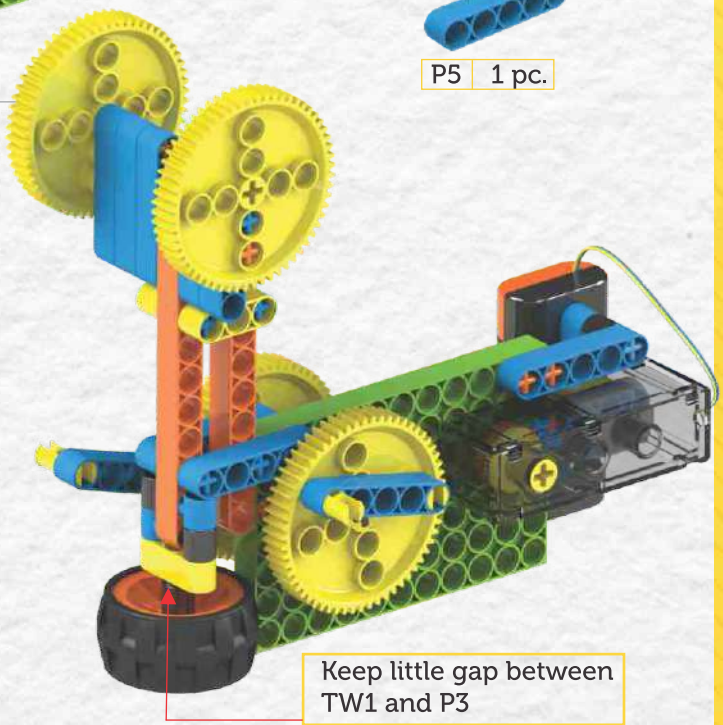


P5 | 1 pc.

Step 12

G(60) | 2 pcs.

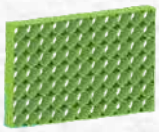
Wheels | 1 pc.



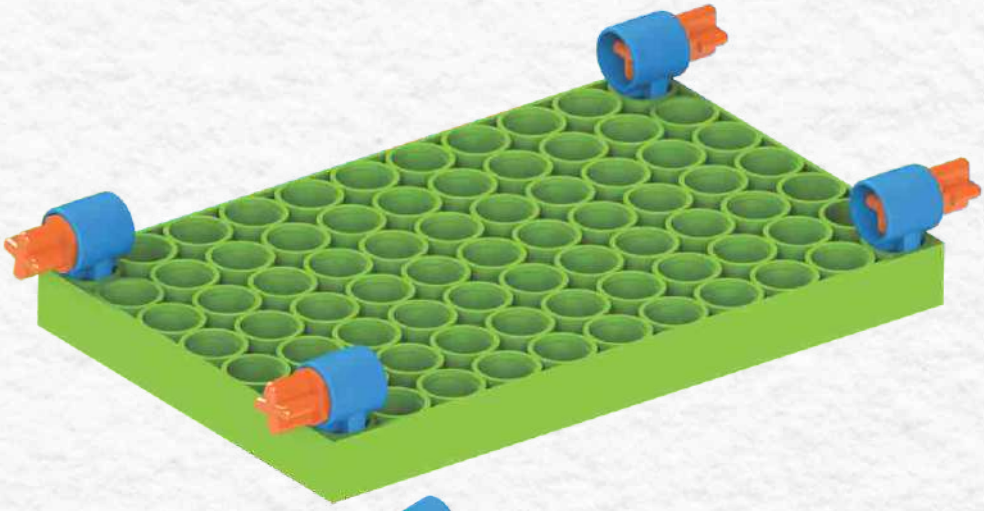
Step 13

CT2 | 4 pcs.

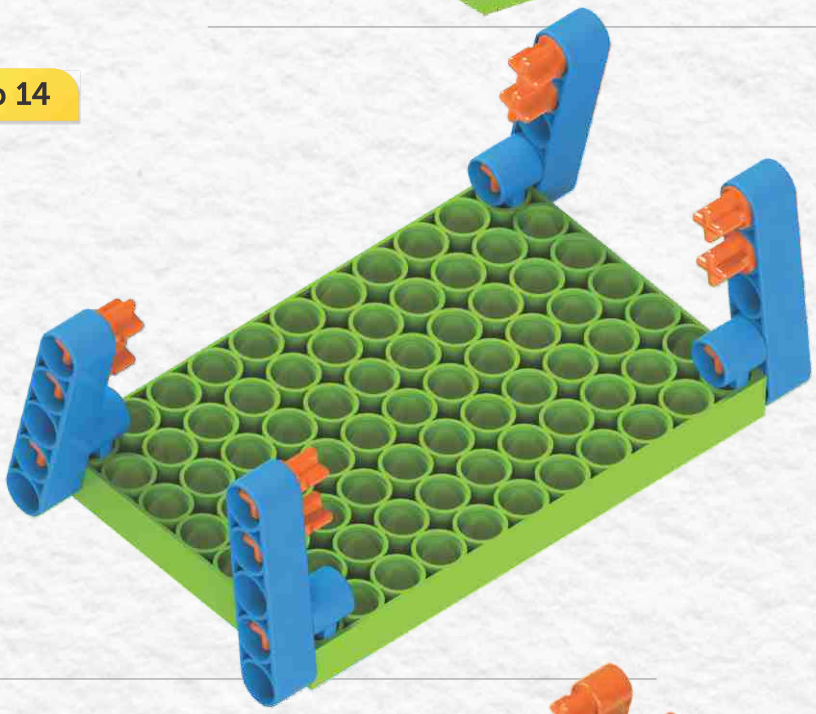
CH2 | 4 pcs.



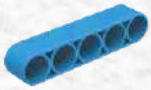
P7X11 | 1 pc.



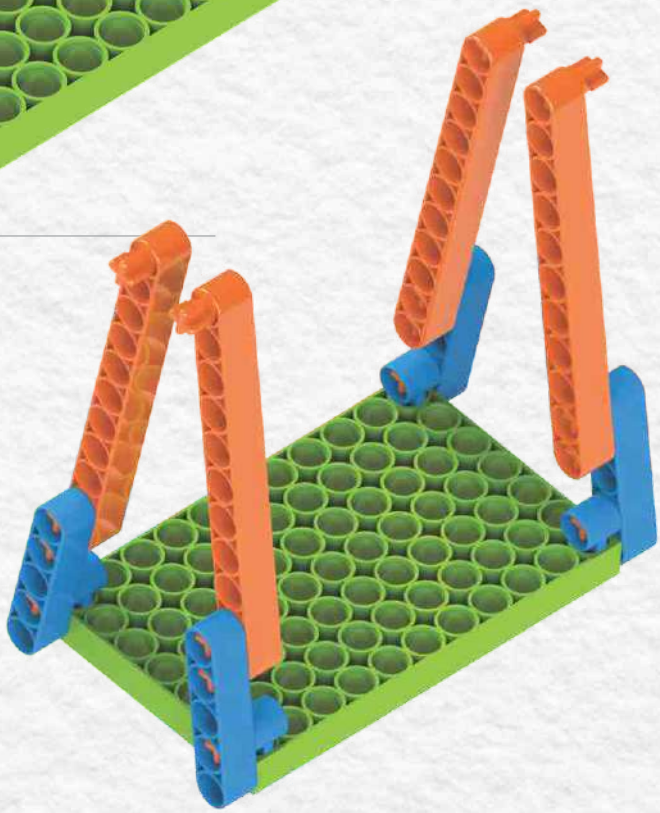
Step 14



CT2 | 8 pcs.

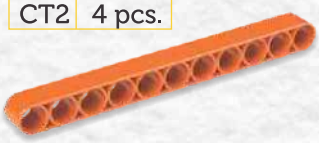


P5 | 4 pcs.



Step 15

CT2 | 4 pcs.



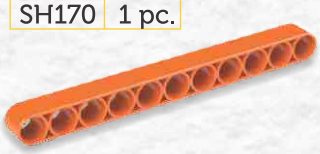
P11 | 4 pcs.

Step 16

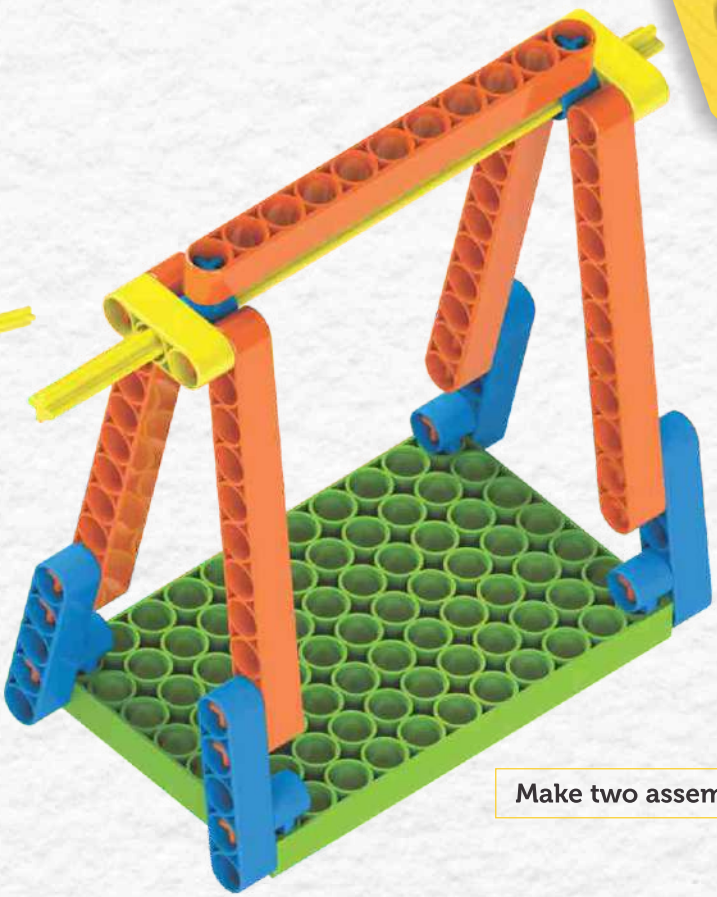
CH2 | 2 pcs.

P3 | 2 pcs.

SH170 | 1 pc.



P11 | 1 pc.

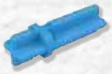


Make two assemblies

Step 17

TW1 | 3 pcs.

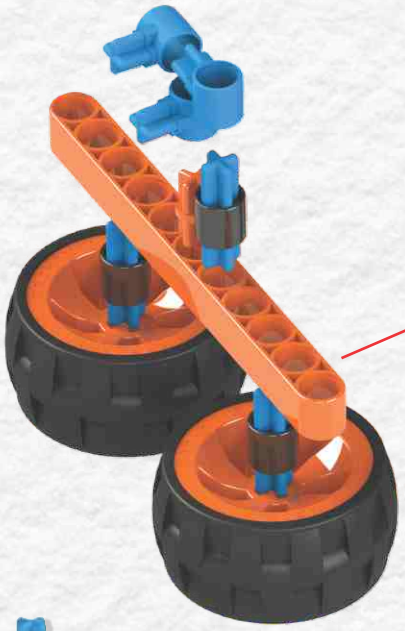
CT2 | 1 pc.

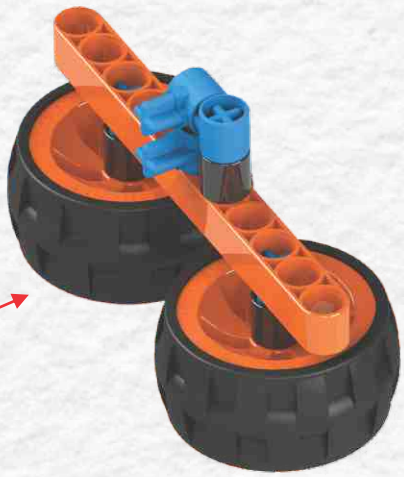


CT3 | 3 pcs.

P11 | 1 pc.

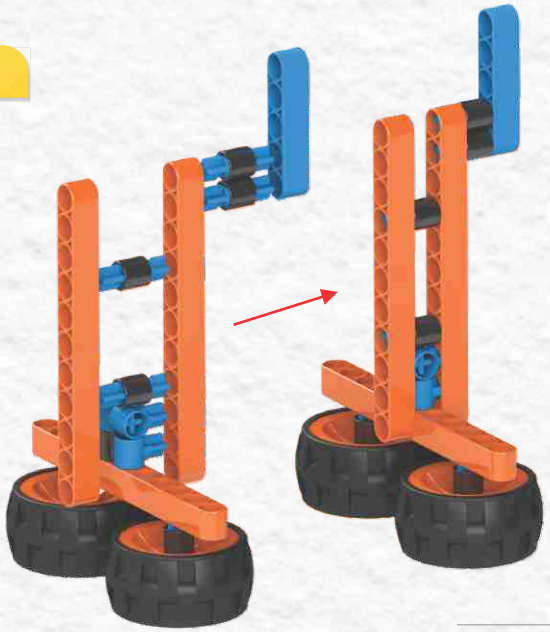
Wheels | 2 pcs.





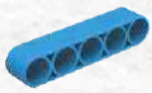
CH2 | 3 pcs.

Step 18

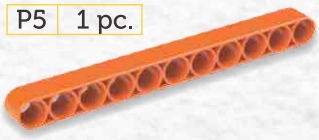


TW1 4 pcs.

CT3 4 pcs.

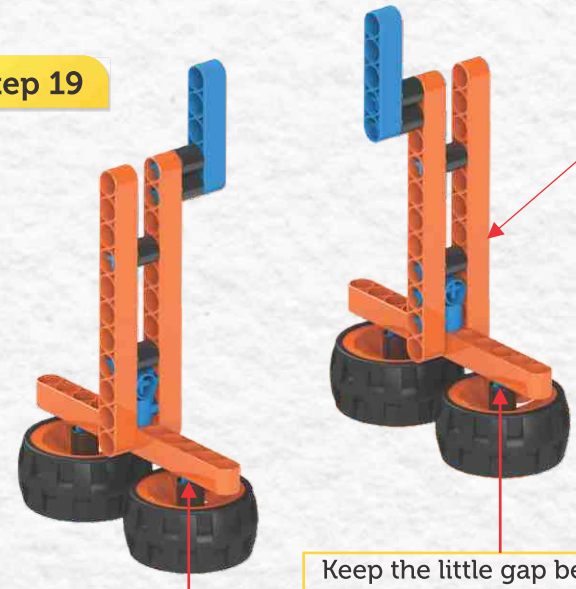


P5 1 pc.



P11 2 pcs.

Step 19



Make step 18 but connect this piece on backside

Keep the little gap between TW1 and P11

Step 20

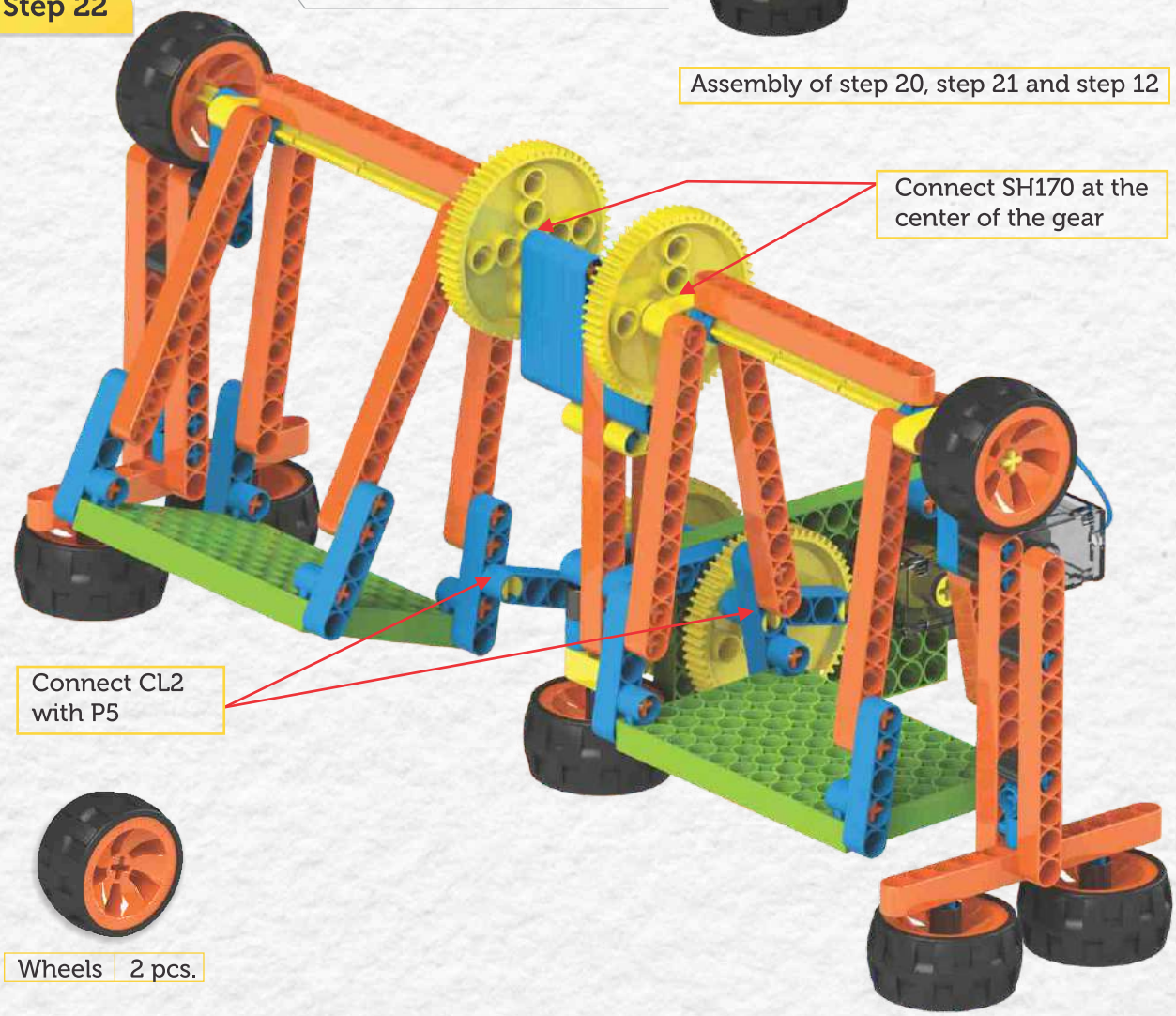
Assembly Of Step 18 and Step 16

Step 21

Assembly of step 19 and 16

Step 22

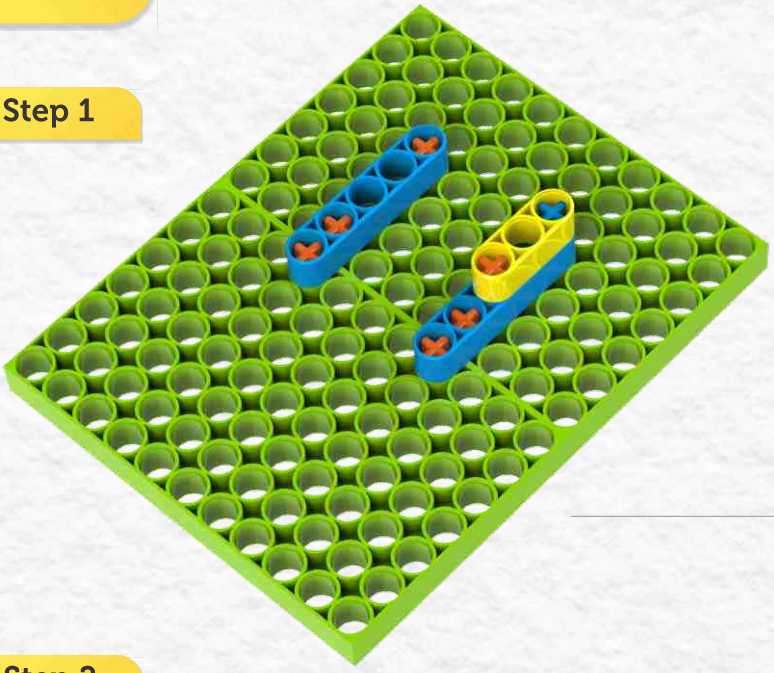
Assembly of step 20, step 21 and step 12



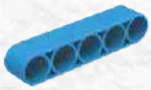
Wheels | 2 pcs.

Model 5

Step 1



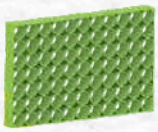
CT2 | 6 pcs.



P5 | 2 pcs.

CT3 | 1 pc.

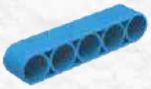
P3 | 1 pc.



P7X11 | 2 pcs.

Step 2

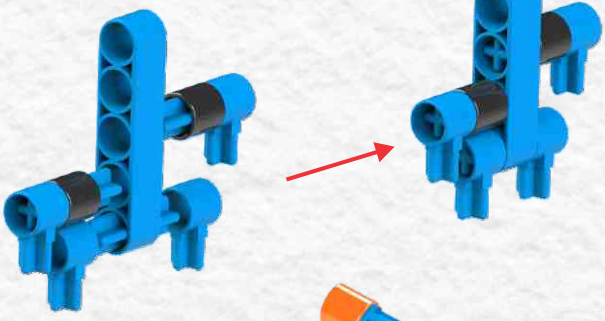
CT3 | 3 pcs.



P5 | 1 pc.

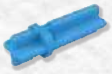
CH2 | 4 pcs.

TW1 | 2 pcs.

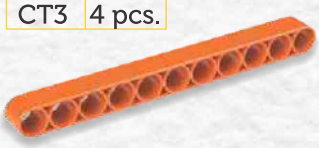


Step 3

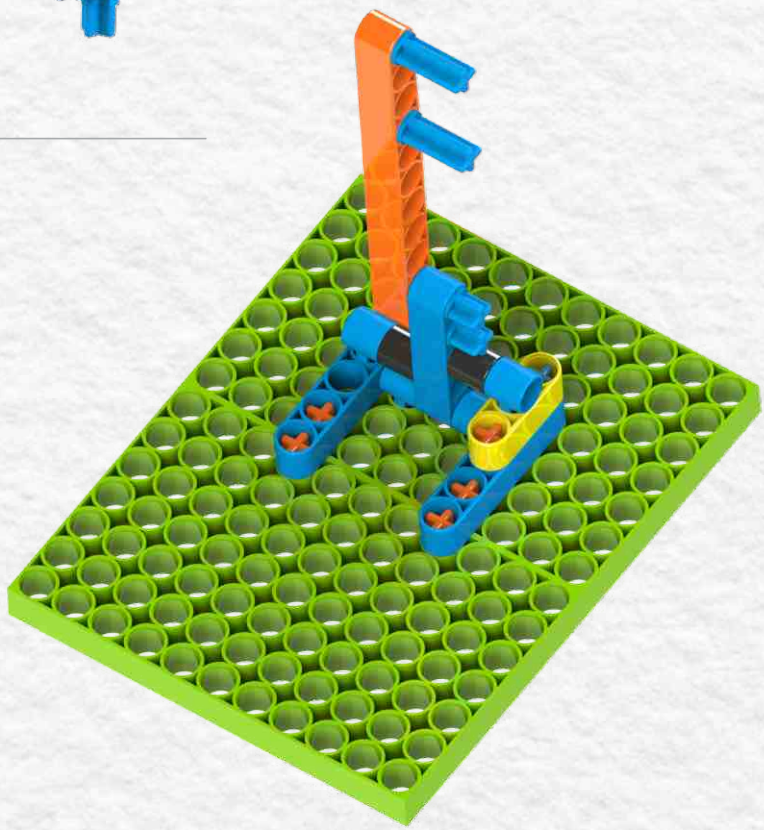
Assembly of step 1 and 2



CT3 | 4 pcs.



P11 | 1 pcs.



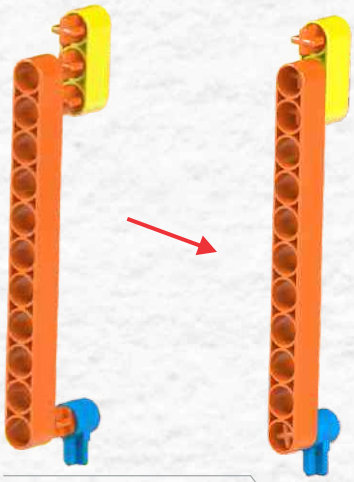
Step 4

CT2 | 4 pcs.

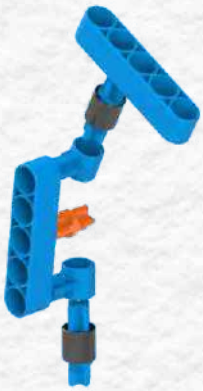
P3 | 1 pc.

CH2 | 1 pc.

P11 | 1 pc.



Step 5

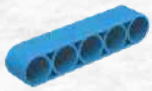


CT2 | 2 pcs.

CT3 | 2 pcs.

CH2 | 3 pcs.

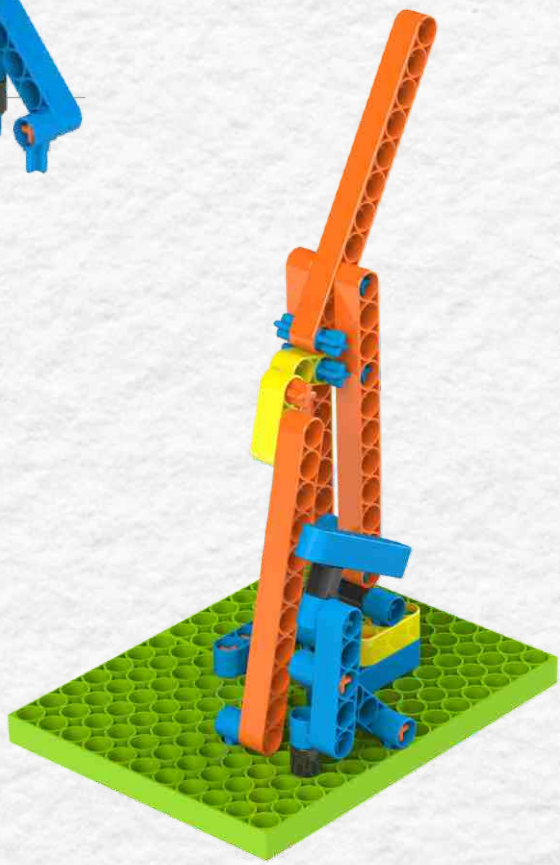
TW1 | 2 pcs.



P5 | 3 pcs.

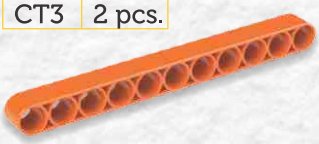
Step 6

Assembly of step 4 and 5



P3 | 1 pc.

CT3 | 2 pcs.



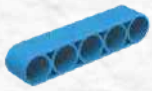
P11 | 2 pcs.

Step 7

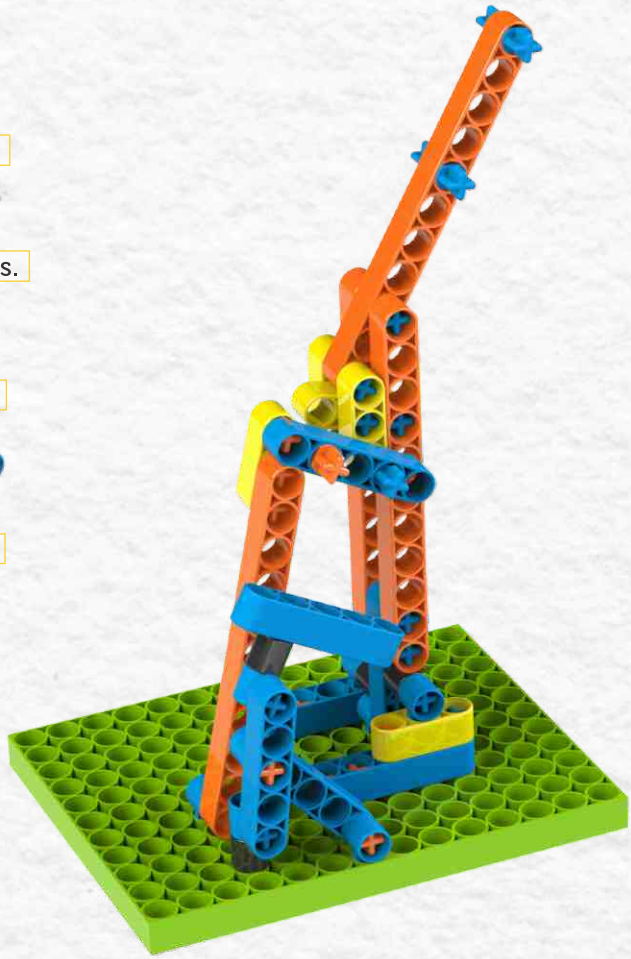
CT2 | 1 pc.

CT3 | 3 pcs.

P3 | 2 pcs.

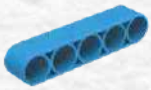


P5 | 1 pc.

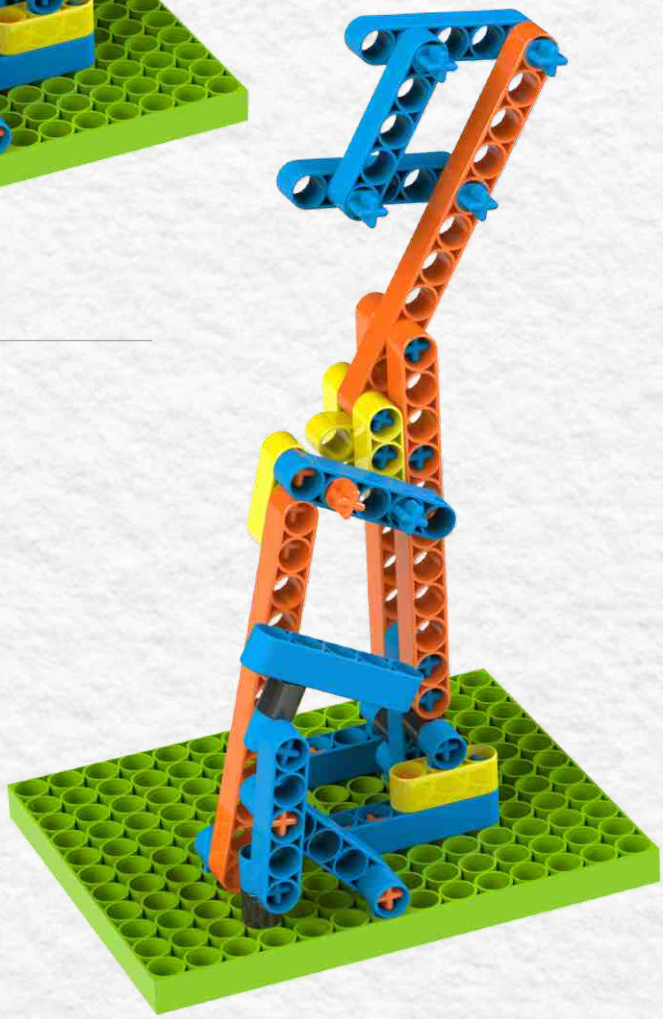


Step 8

CT3 | 2 pcs.



P5 | 3 pcs.

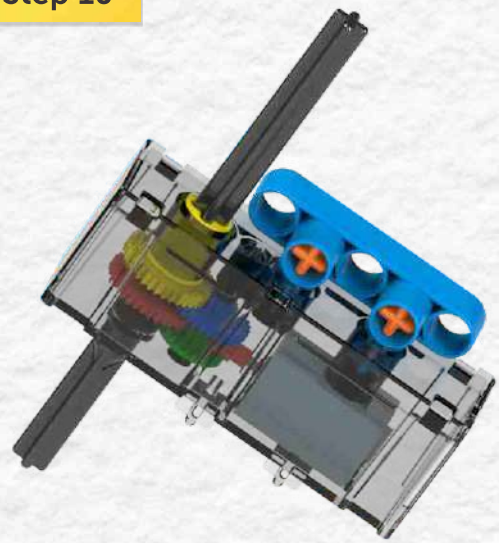


Step 9

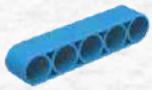
CH2 | 2 pcs.

P5 | 2 pcs.

Step 10



SH60 | 1 pc.



P5 | 1 pc.

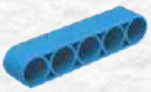
Motor with Battery Box

CT2 | 2 pcs.

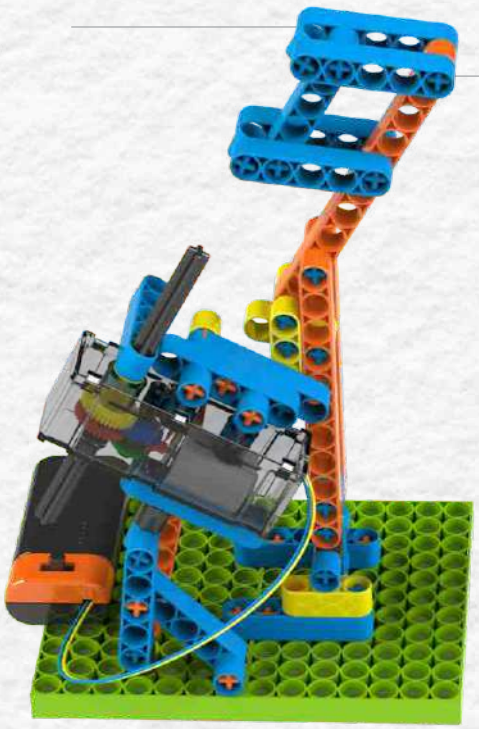
CH2 | 2 pcs.

Step 11

Assembly of step 9 and 10



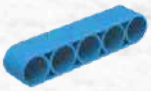
P5 | 1 pc.



Step 12

TW1 | 7 pcs.

SH170 | 1 pc.

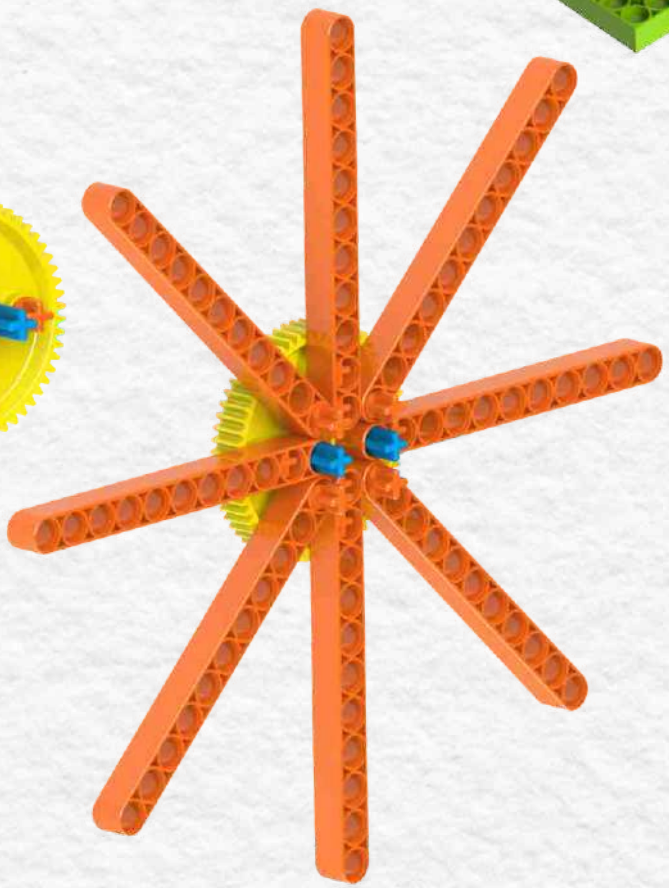


P5 | 1 pc.

G(20) | 1 pc.

G(60) | 1 pc.

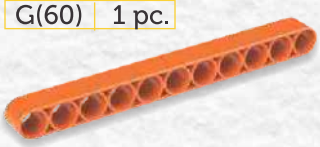
Step 13



CT2 | 10 pcs.

CT3 | 2 pcs.

G(60) | 1 pc.

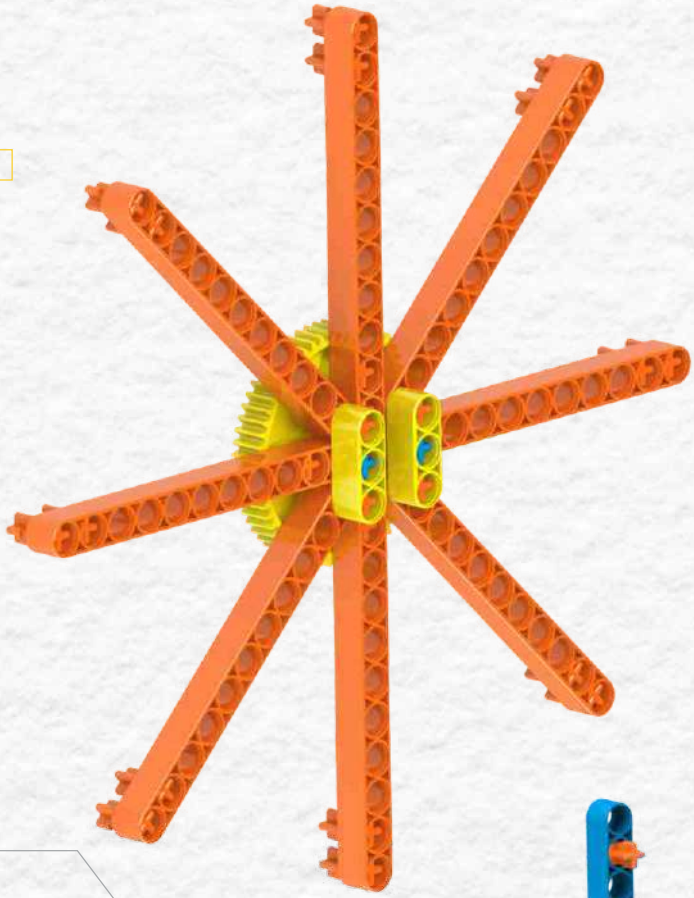


P11 | 8 pcs.

Step 14

CT2	16 pcs.

P3	2 pcs.

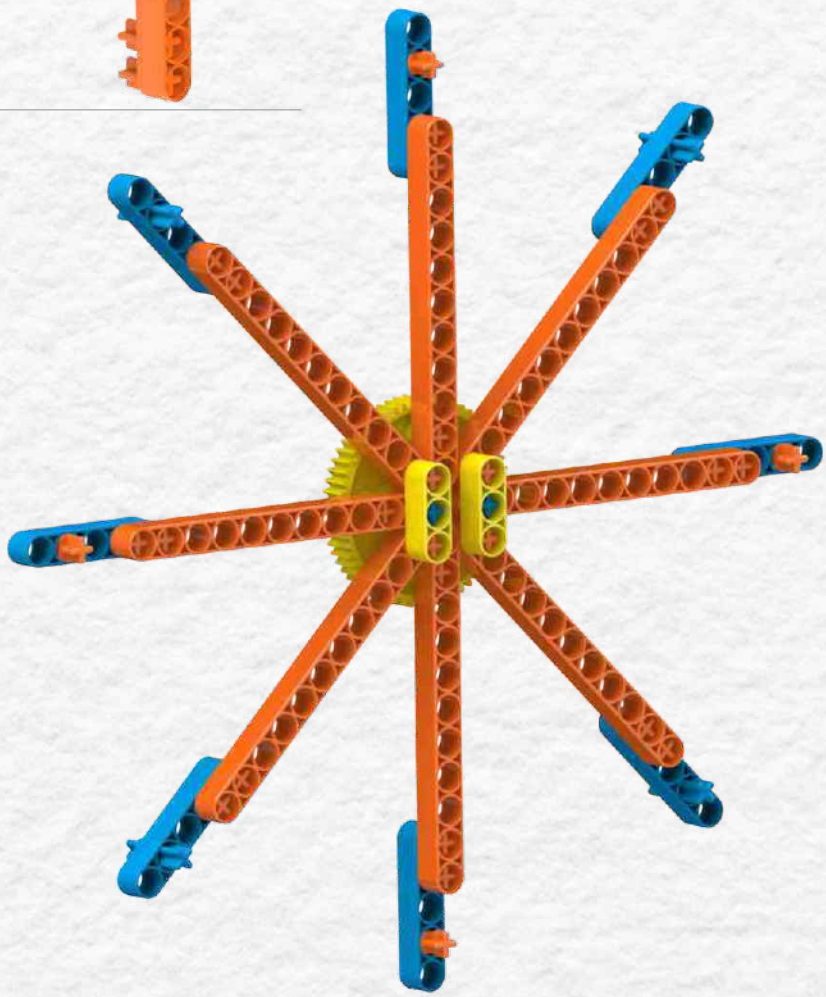


Step 15

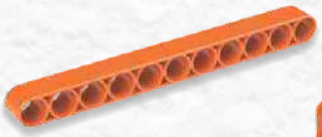
CT2	4 pcs.

CT3	4 PCS.

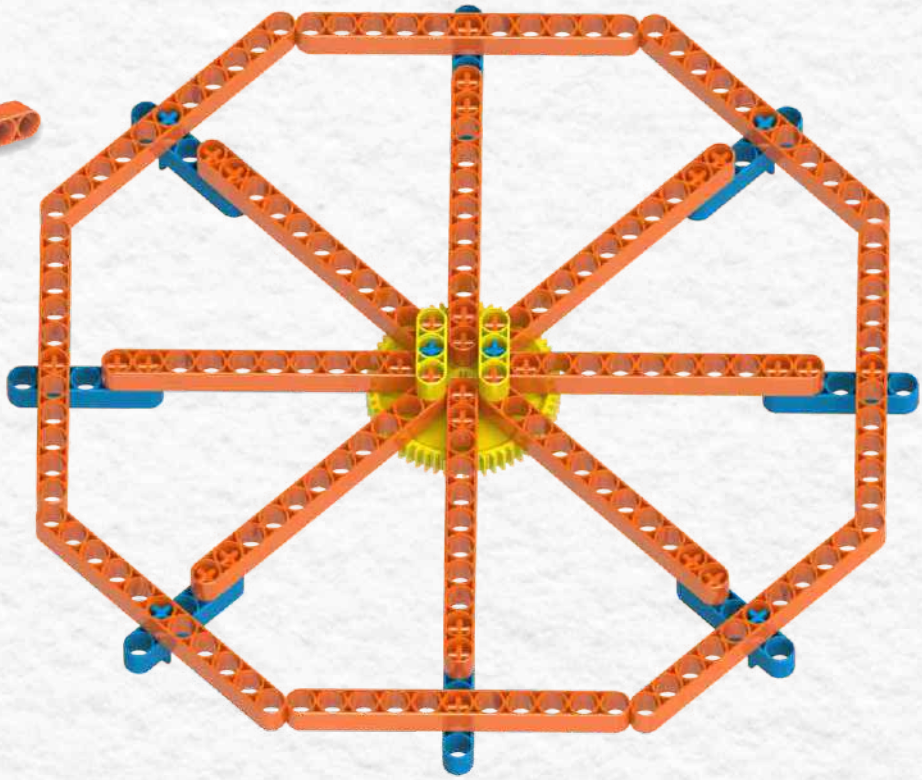
P5	8 pcs.



Step 16



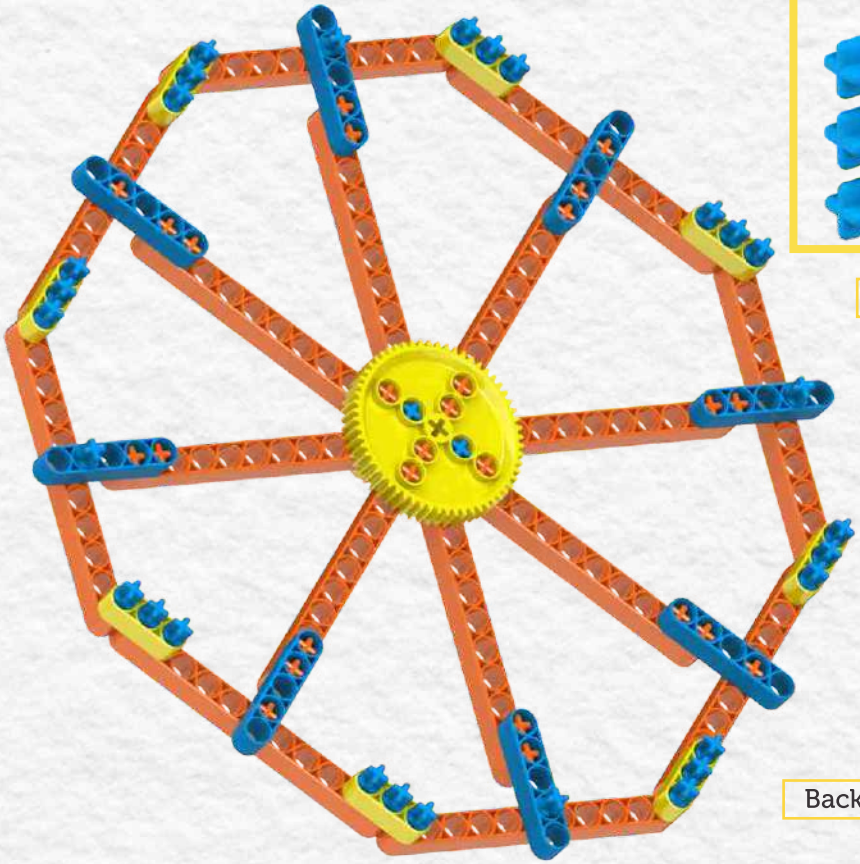
P11 | 8 pcs.

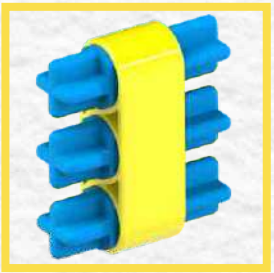


Step 17

CT3 | 24 pcs.

P3 | 8 pcs.



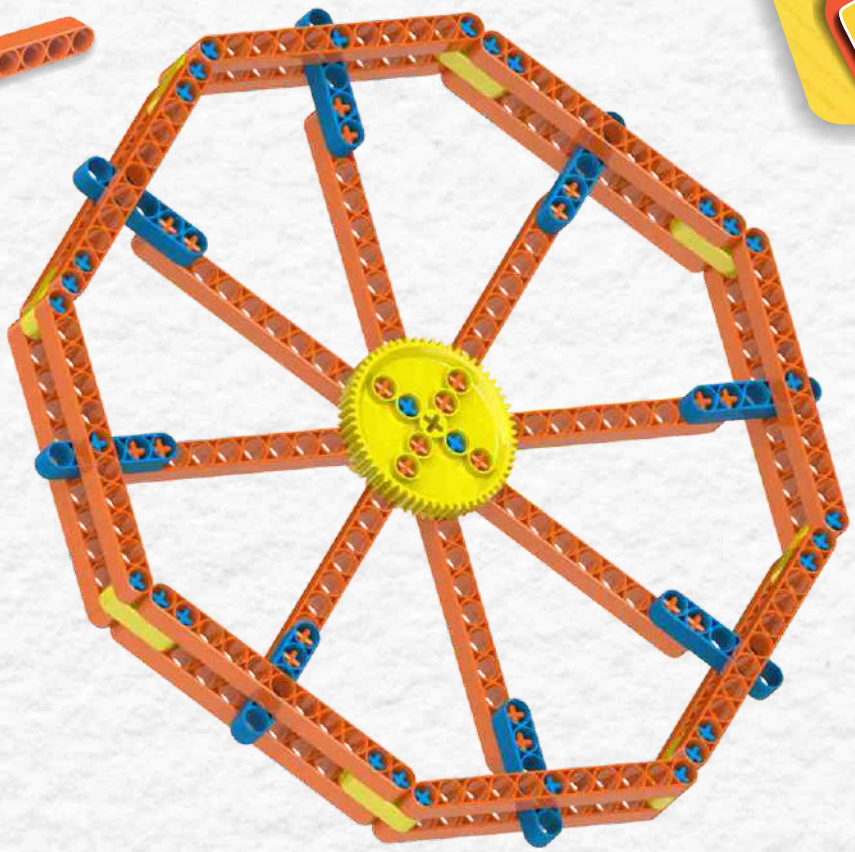


Make 8

Backside

Step 18

P11 | 8 pcs.



Step 19

TW1 | 8 pcs.

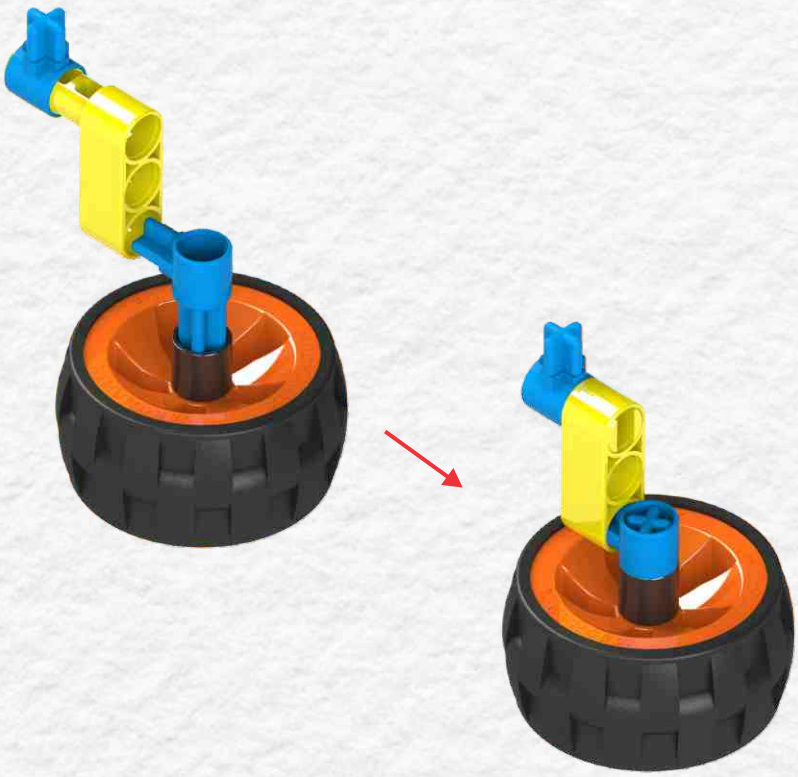
CH2 | 16 pcs.

CT3 | 8 pcs.

CL2 | 8 pcs.

P3 | 8 pcs.

Wheels | 8 pcs.



Make 8

Step 20

Assembly of step 18 and 19

Step 21

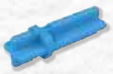
Assembly of step 20 and 12

Attach step 20 on the yellow shaft

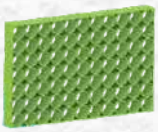
Model 7

Step 1

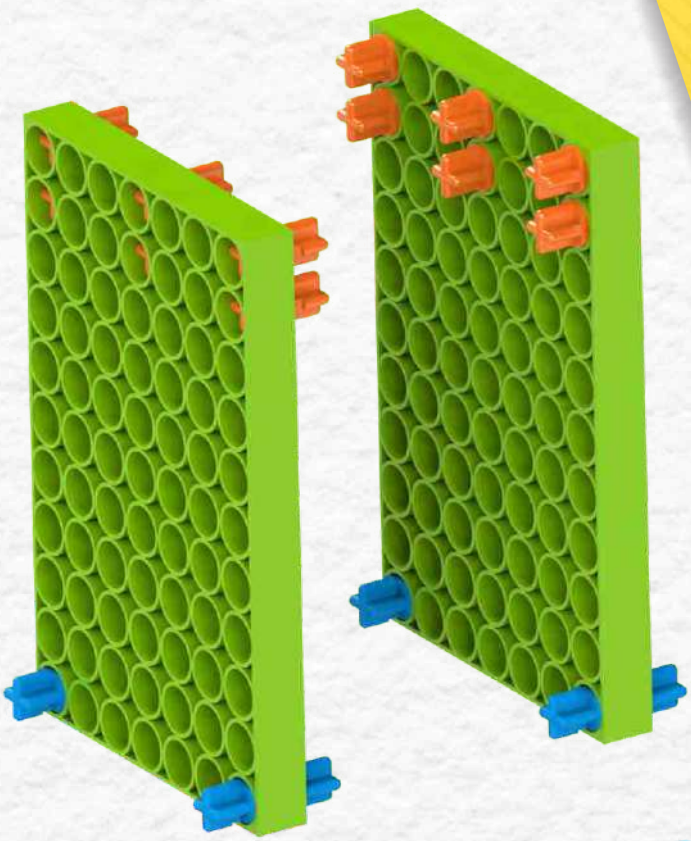
CT2 | 12 pcs.



CT3 | 4 pcs.



P7X11 | 2 pcs.

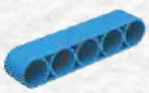


Step 2

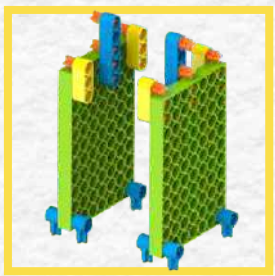
CT2 | 8 pcs.

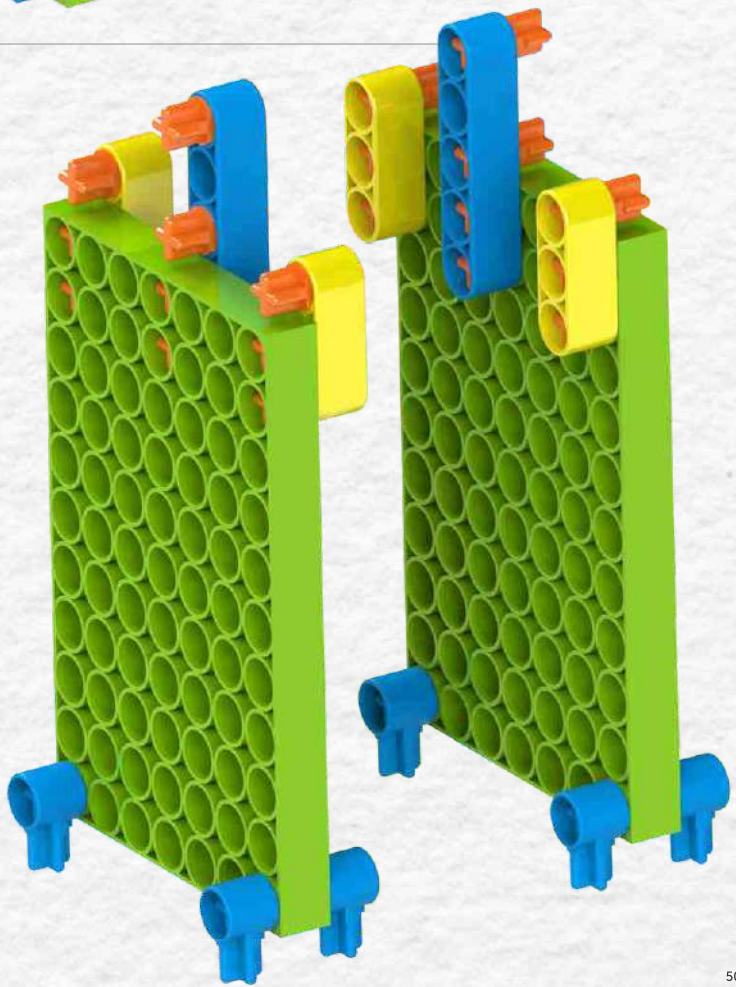
CH2 | 8 pcs.

P3 | 4 pcs.

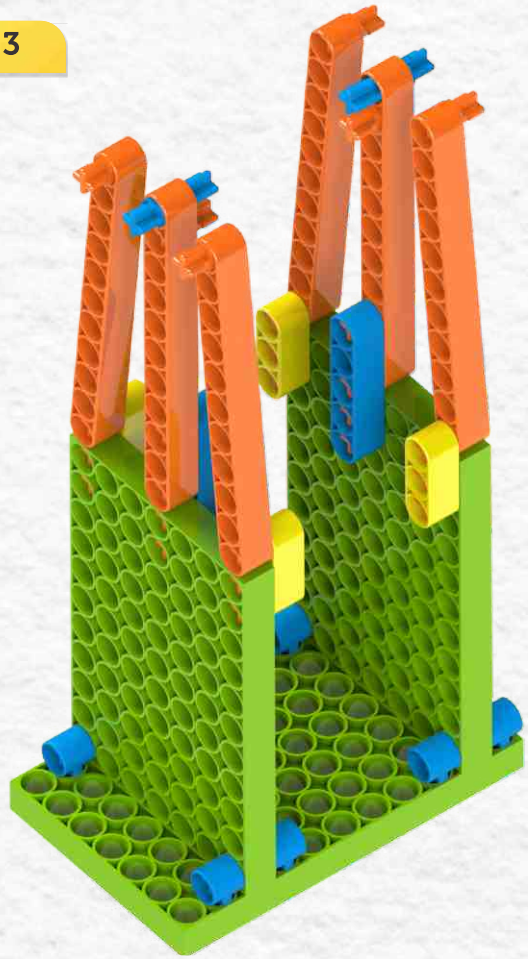


P5 | 2 pcs.



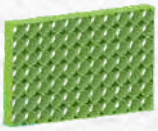


Step 3

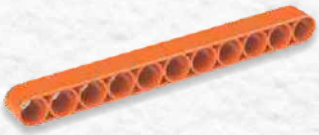


CT2 | 6 pcs.

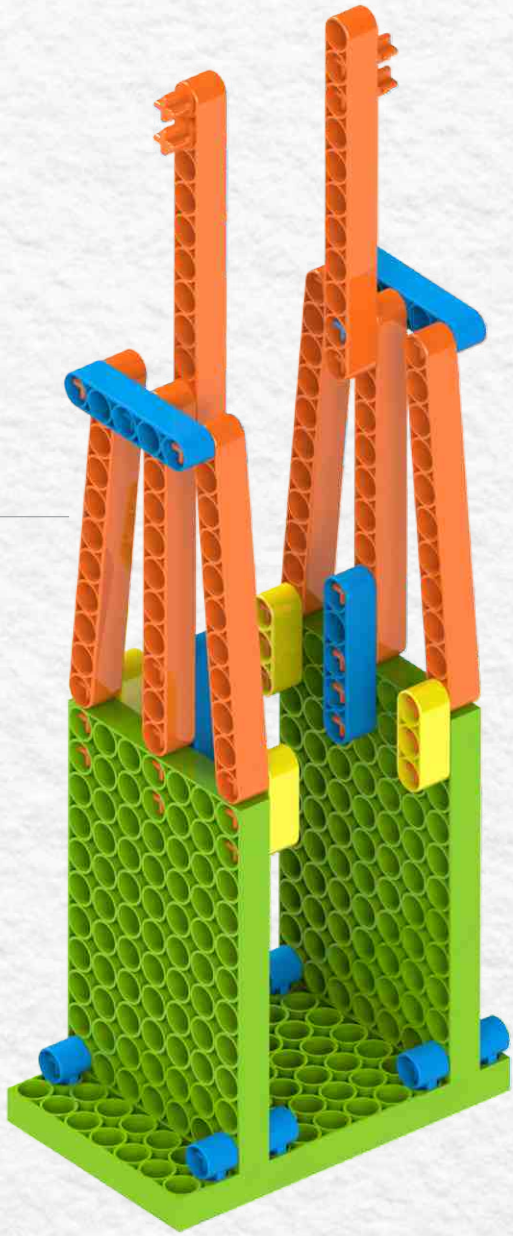
CT3 | 2 pcs.



P7X11 | 1 pc.



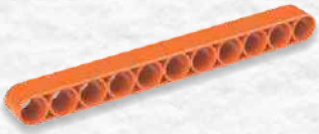
P11 | 6 pcs.



Step 4

CT2 | 4 pcs.

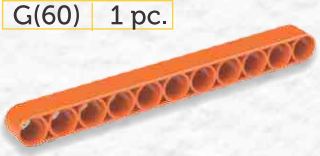
P5 | 2 pcs.



P11 | 2 pcs.

Step 5

G(60) 1 pc.



P11 1 pc.

SH170 1 pc.

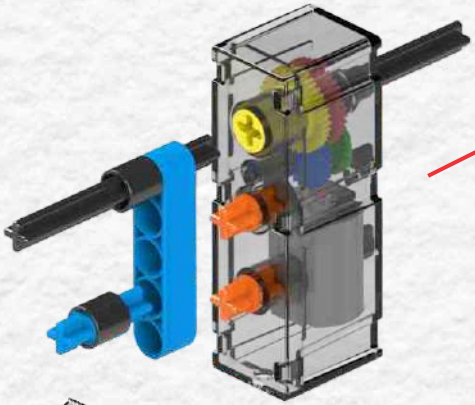
Step 6

TW1 2 pcs.

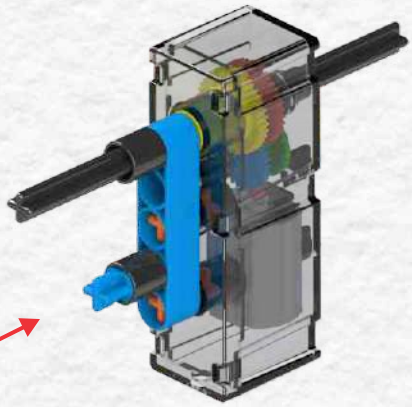
CT2 2 pcs.

CT3 1 pc.

P5 1 pc.



Motor with Battery Box



Step 7

Assembly of step 6 and 5

TW1 | 6 pcs.

G(60) | 1 pc.

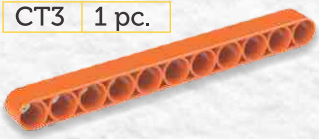
SH60 | 4 pcs.

Step 8

TW1 | 1 pc.

CL2 | 1 pc.

CT3 | 1 pc.



P11 | 1 pc.

Step 9

G(20) 2 pcs.

G(20) Idler 1 pc.

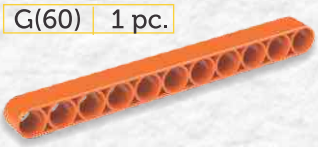
G(60) 1 pc.

Step 10

Attach final assembly here

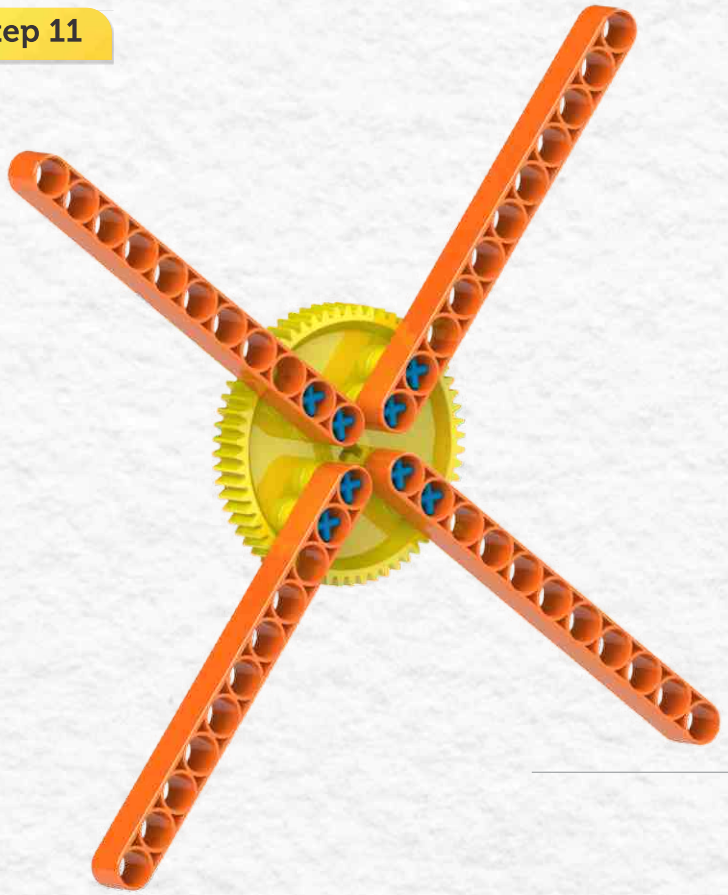
TW1 2 pcs.

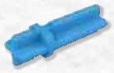
G(60) 1 pc.



P11 1 pc.

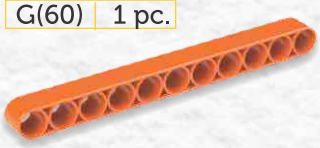
Step 11





CT3 | 8 pcs.

G(60) | 1 pc.



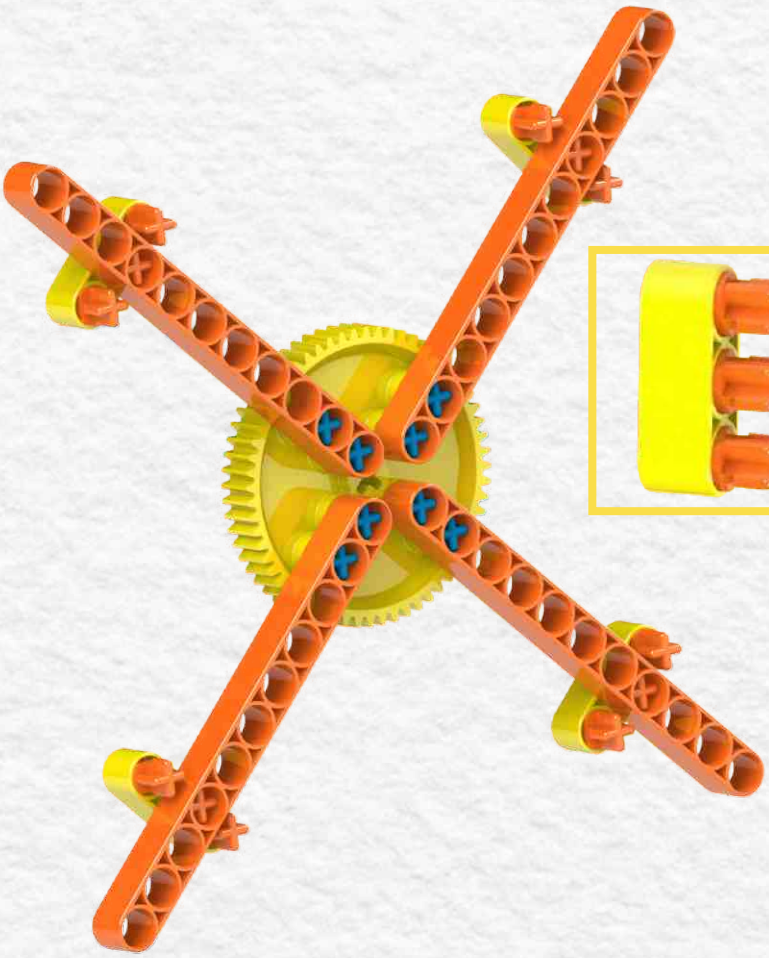
P11 | 4 pcs.

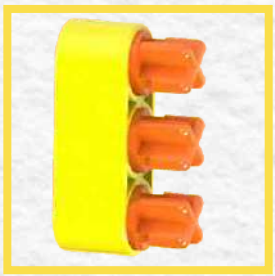
Step 12

CT2 | 12 pcs.

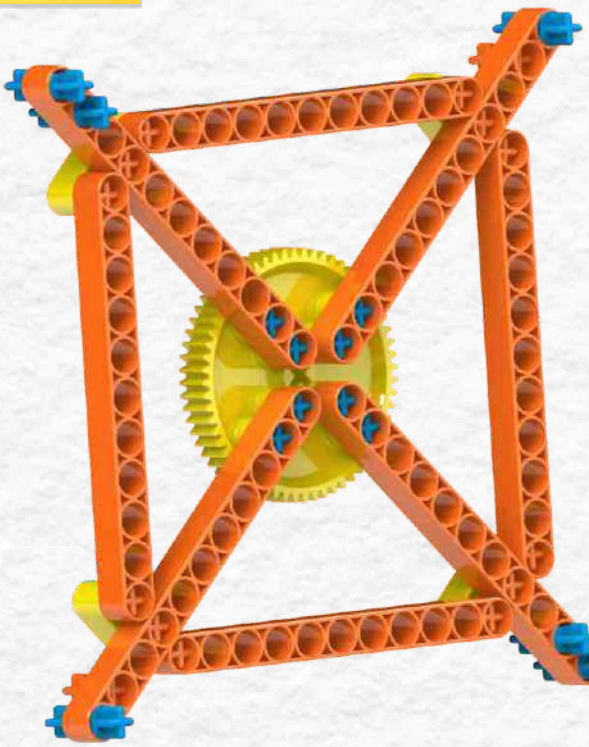
P3 | 4 pcs.

Attach with step 11



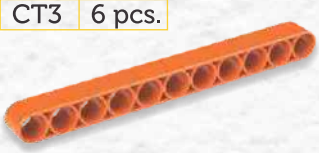


Step 14



CT2	2 pcs.

CT3	6 pcs.



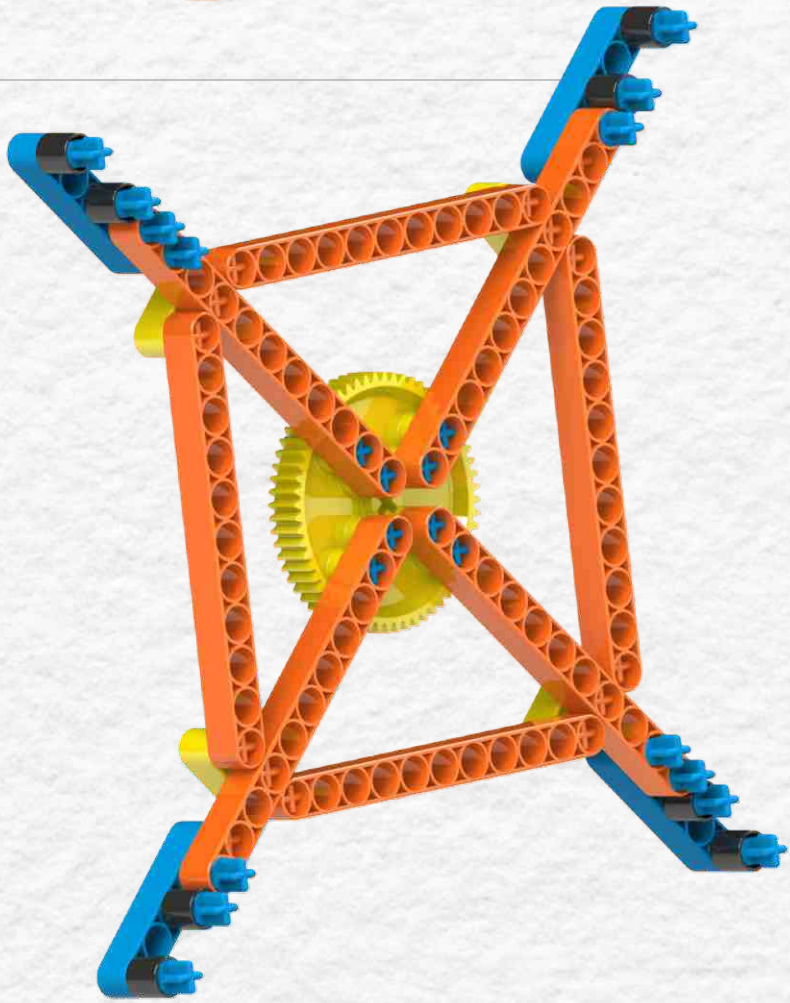
P11	4 pcs.

Step 15

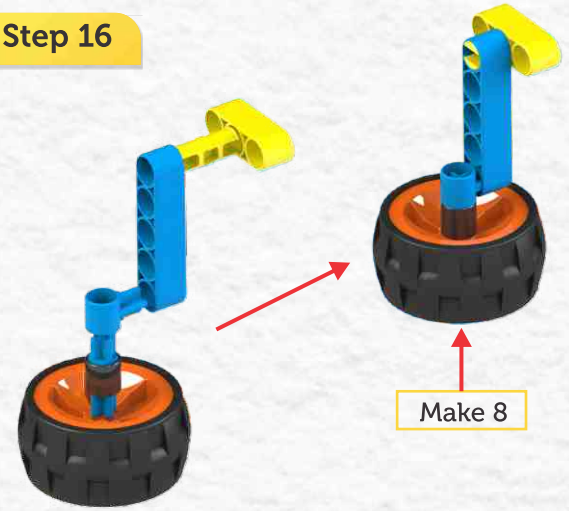
TW1	8 pcs.

CT3	8 pcs.

P5	4 pcs.



Step 16



Make 8

CL2 | 4 pcs.

CH2 | 4 pcs.

CT3 | 4 pcs.

TW1 | 4 pcs.

P3 | 4 pcs.

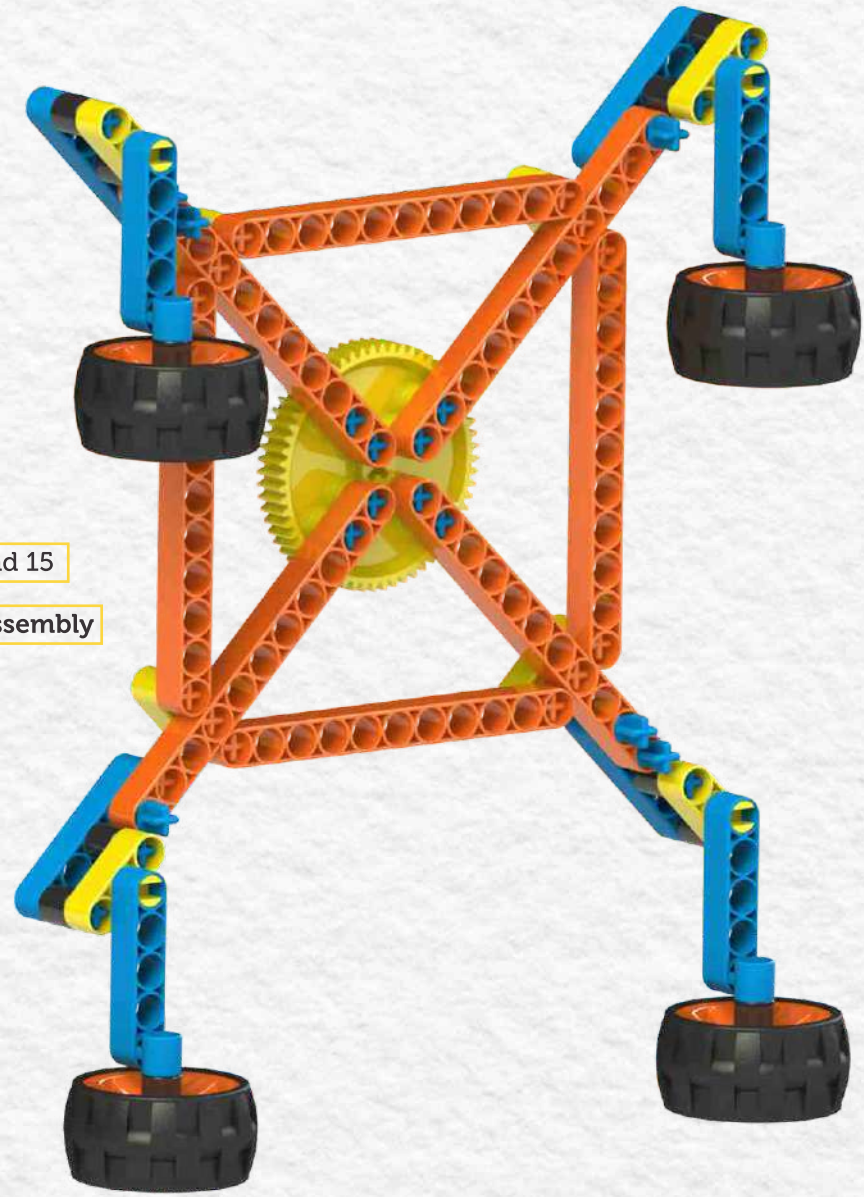
P5 | 4 pcs.

Wheels | 4 pcs.

Step 17

Assembly of step 16 and 15

Make another same assembly



Step 18

Assembly of step 17 and 10

Check out our other Blix Sets

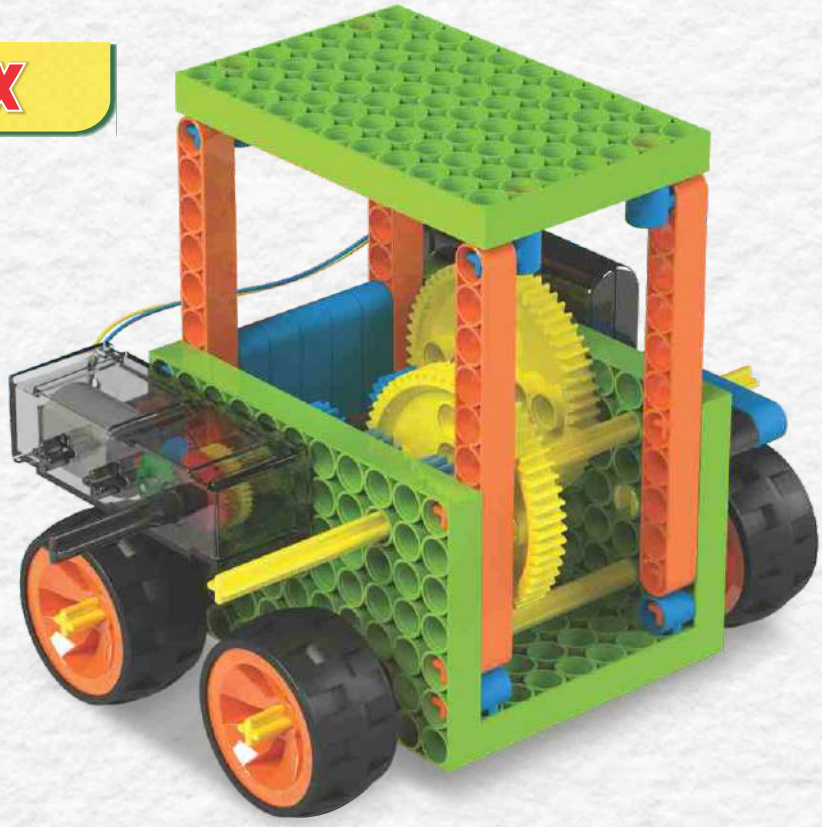
Blix CARS-1

Blix CARS-2

For detailed steps please visit www.blix.in

POWER SCREW

GEAR BOX



Also From ZEPHYR

More Than Just Play

MECHANIX - Robotix - 3

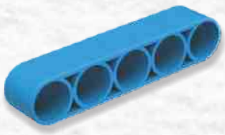
MECHANIX - Battle Station - Transporter

MECHANIX - Eiffel Tower

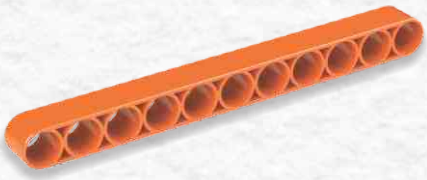
ZEPHYR
More Than Just Play

Blix AMUSEMENT PARK

P3	24 pcs.



P5	25 pcs.



P11	30 pcs.

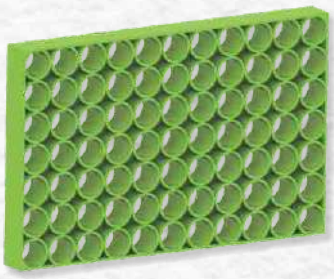
CT2	70 pcs.

CT3	65 pcs.

CL2	12 pcs.

CH2	45 pcs.

TW1	40 pcs.



P7X11	3 pcs.

G(60)	4 pcs.

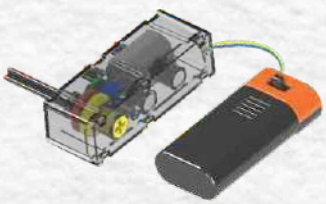
G(20)	4 pcs.

G(20) Idler	4 pcs.

Wheels	8 pcs.

SH170	2 pcs.

SH60	4 pcs.



Motor With Battery Box	1pc.

Remover Tool	1 pc.