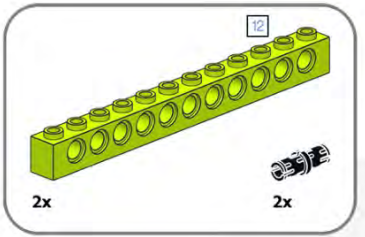

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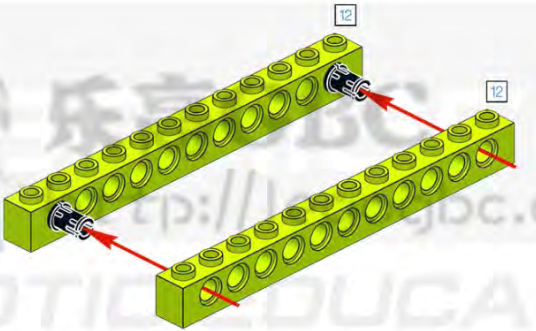

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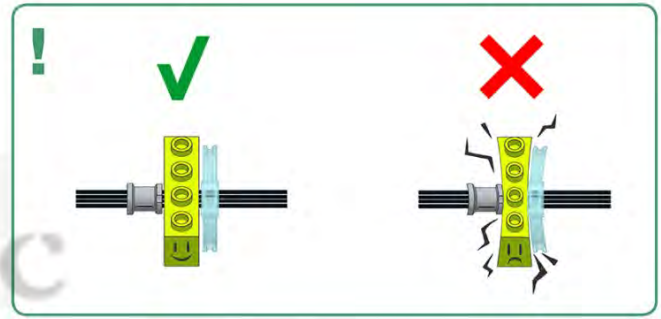

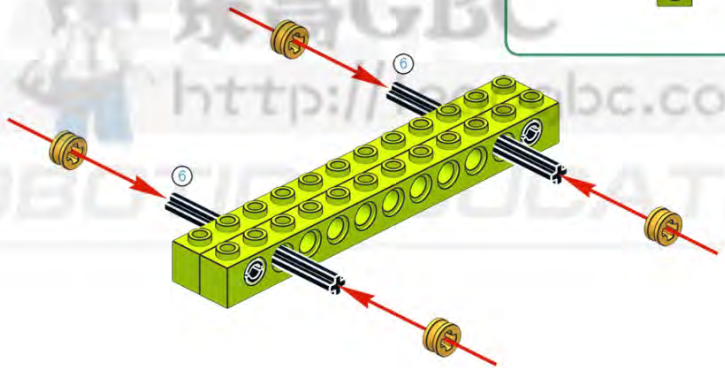

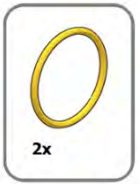

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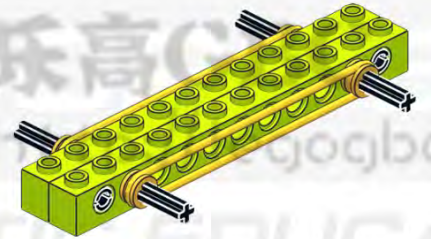

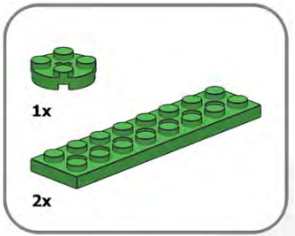

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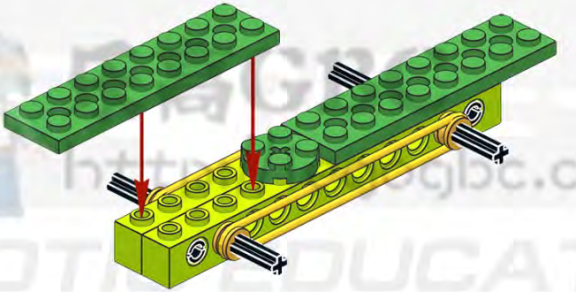

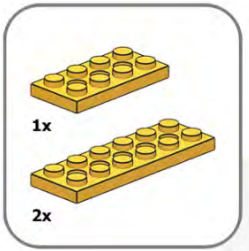

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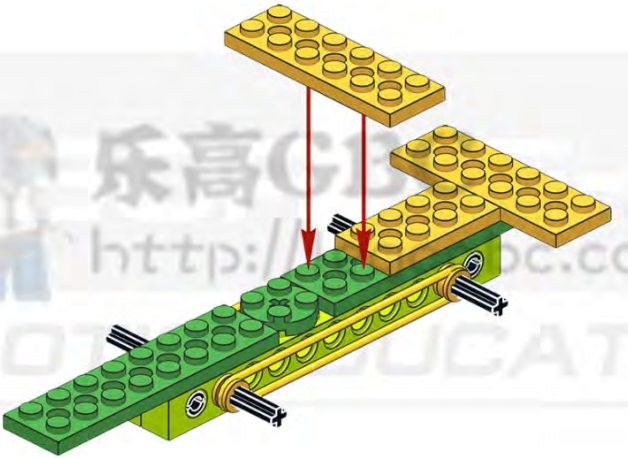

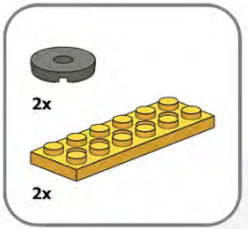

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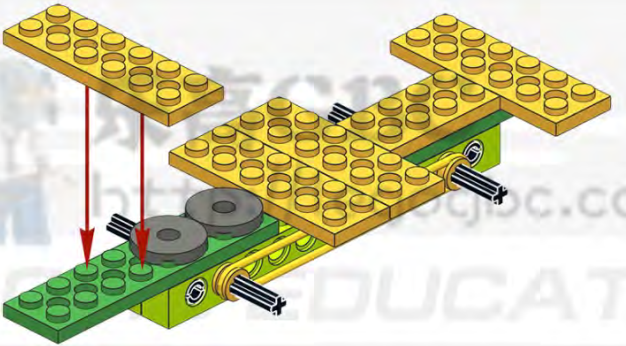

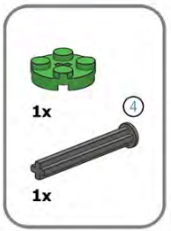

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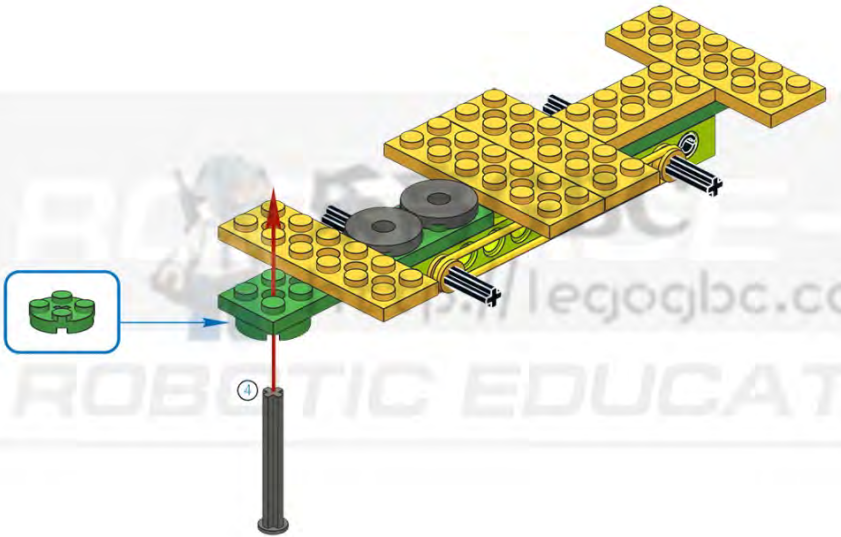

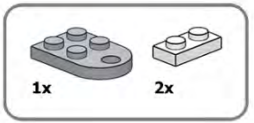

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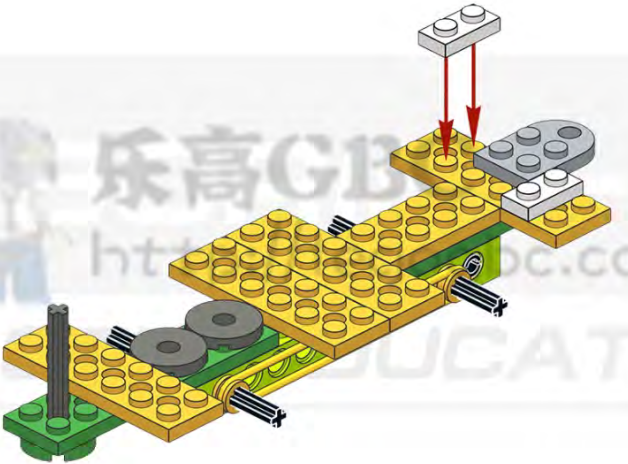

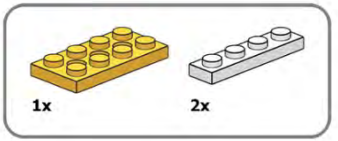

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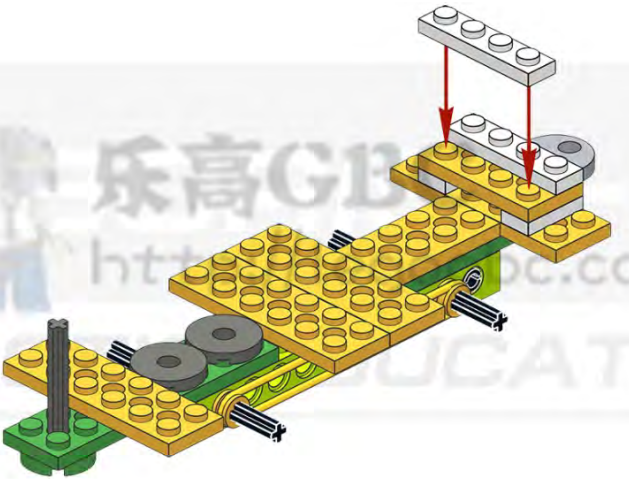

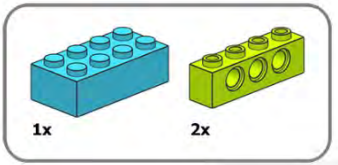

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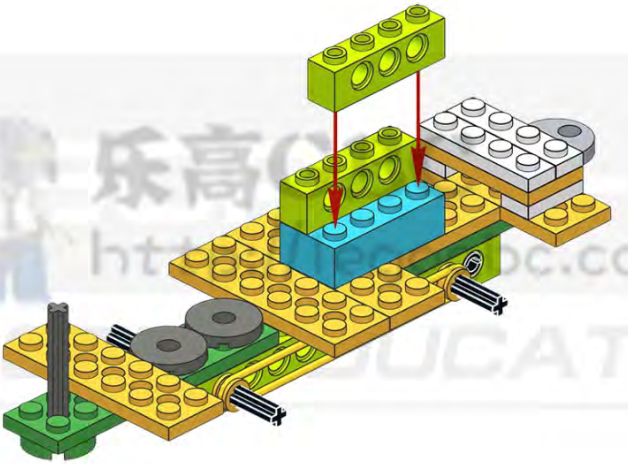

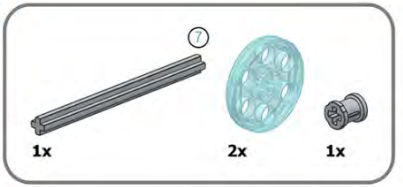
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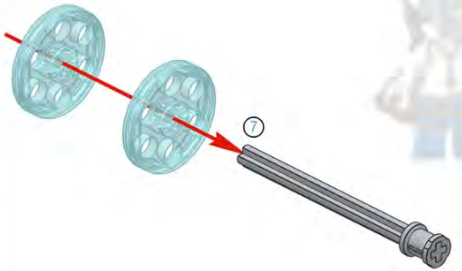
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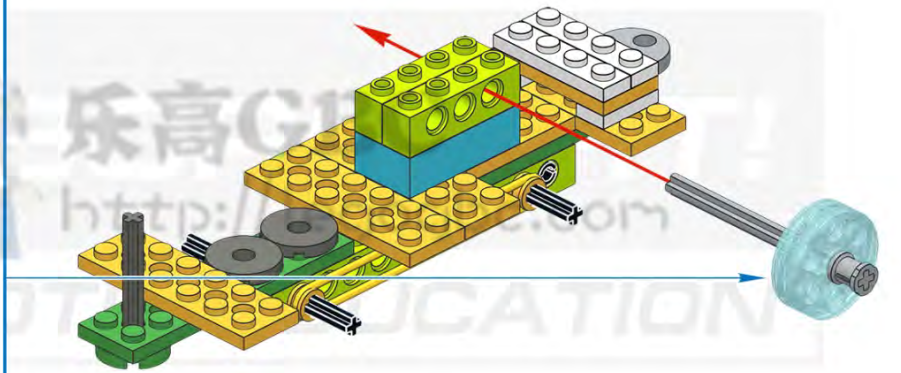

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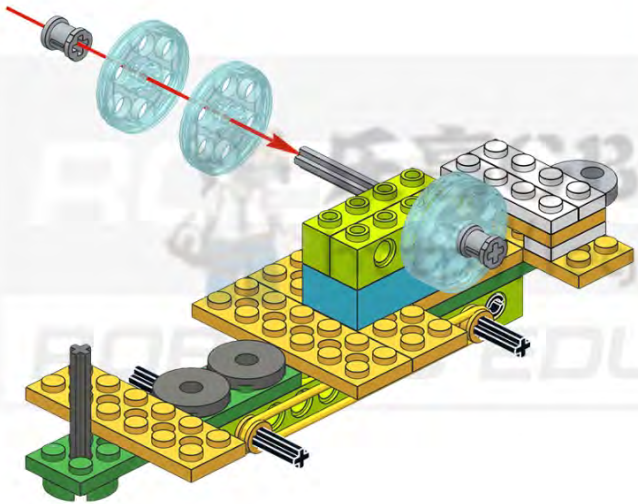

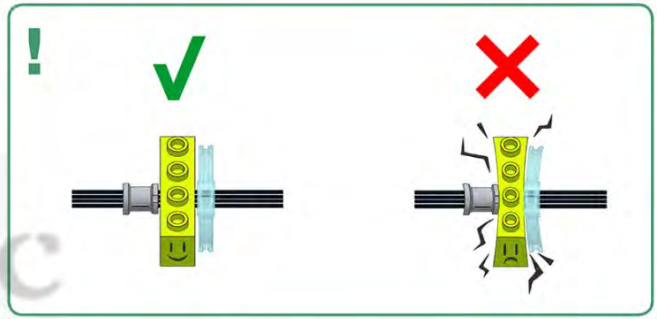

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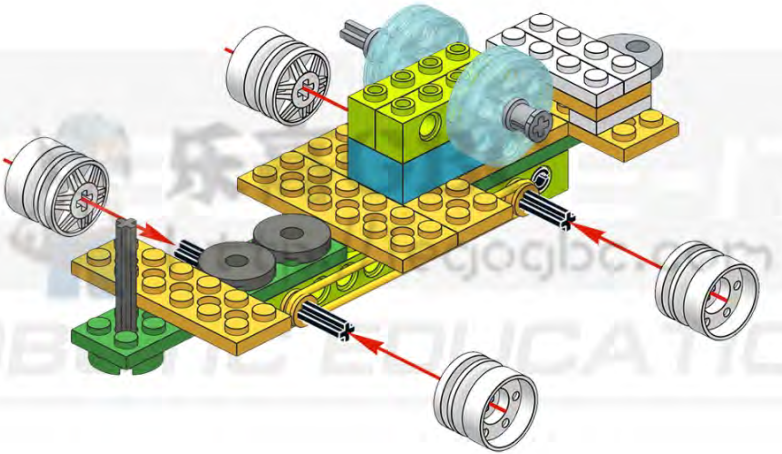

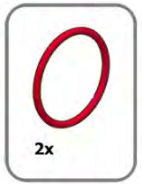

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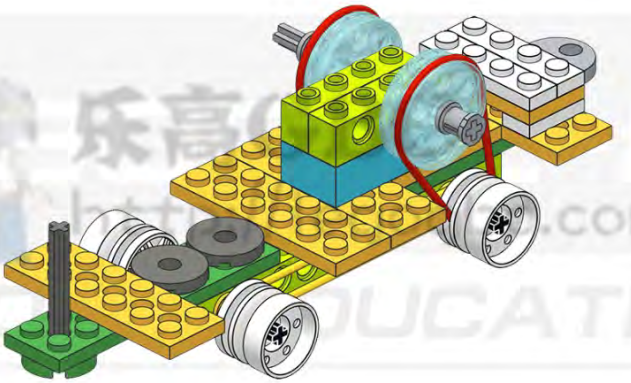

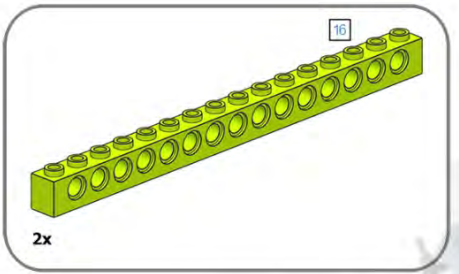

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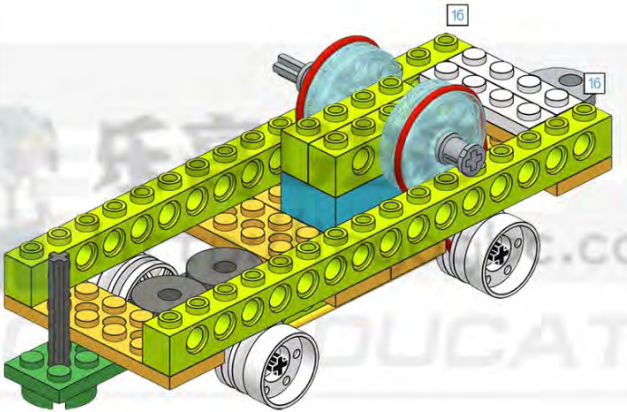

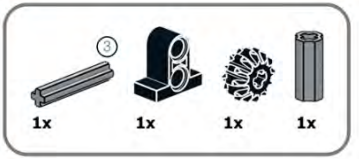

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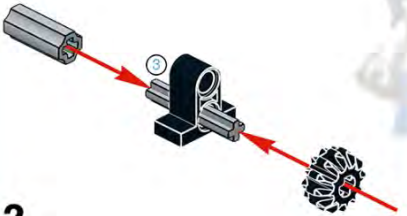

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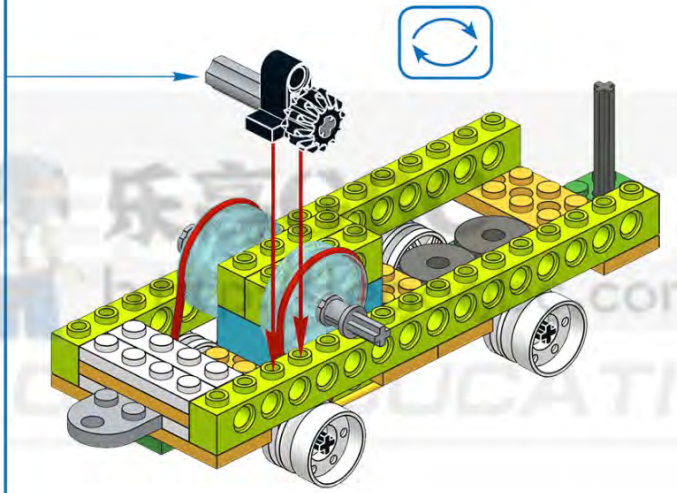

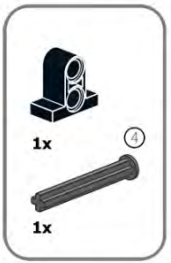

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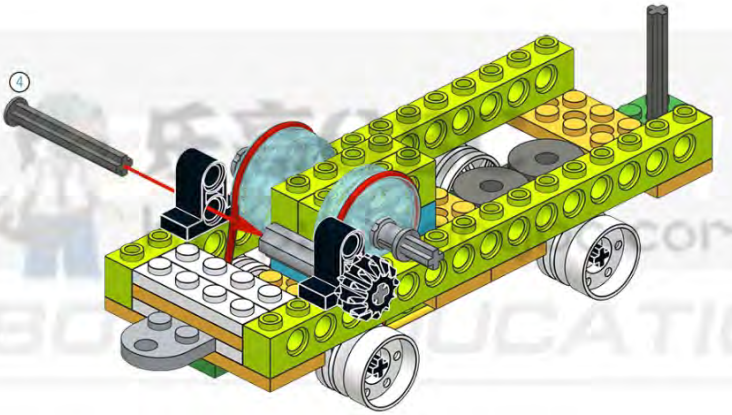

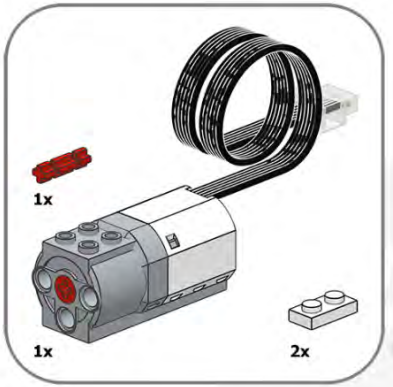

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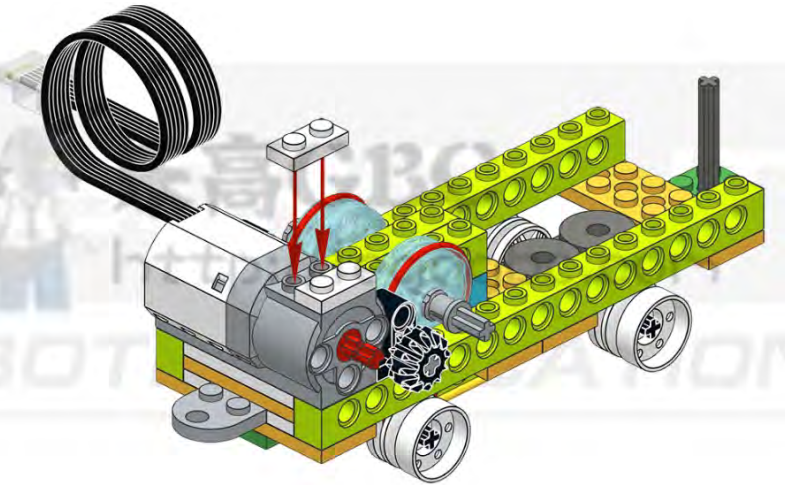

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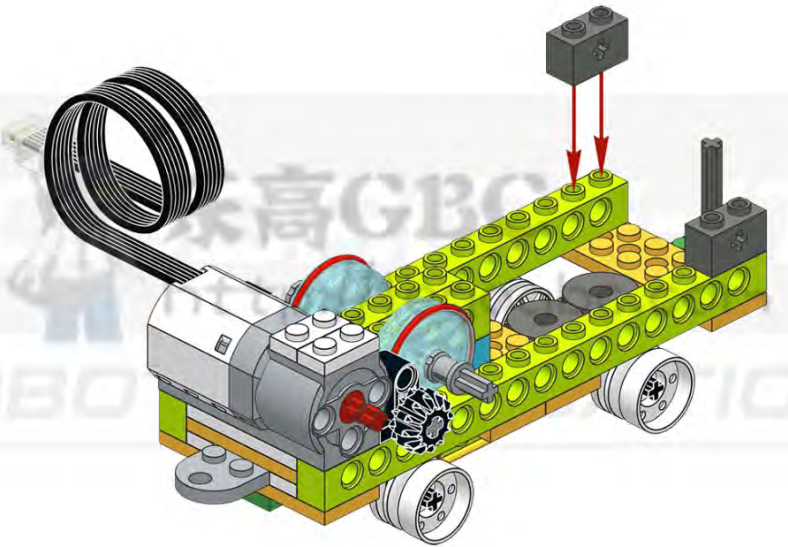

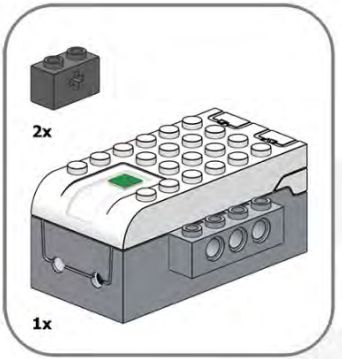

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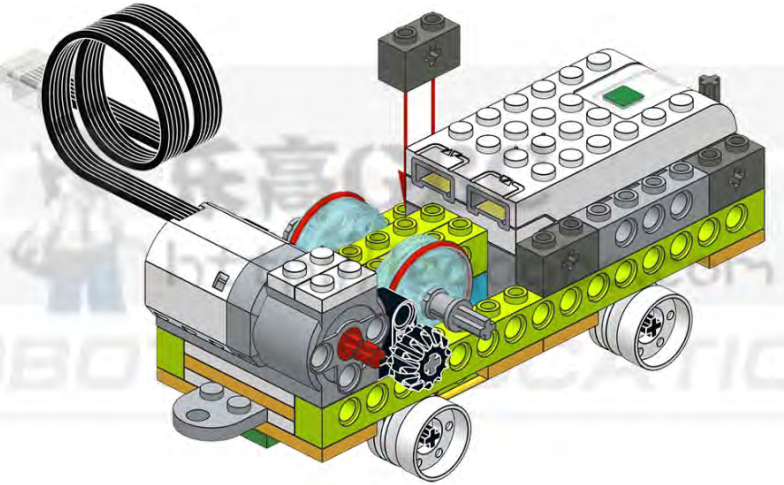

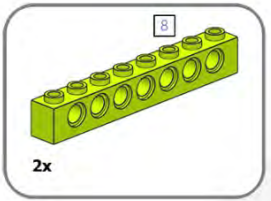

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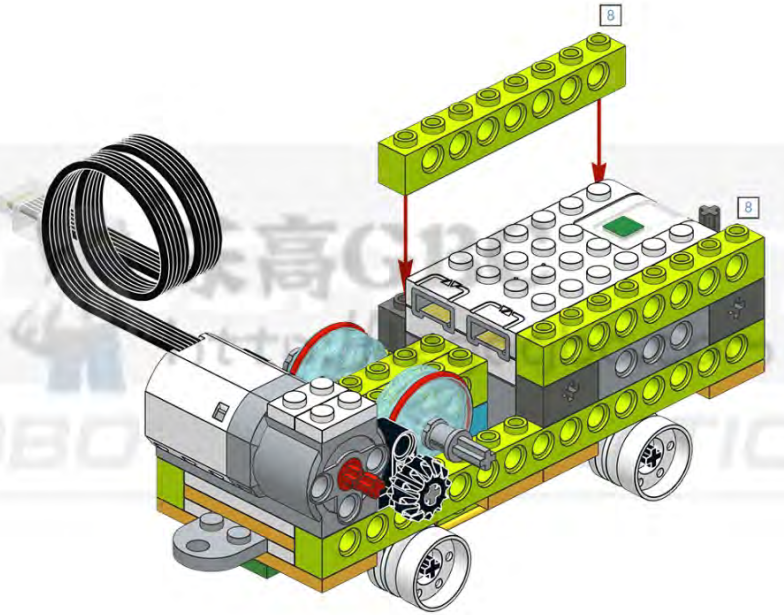

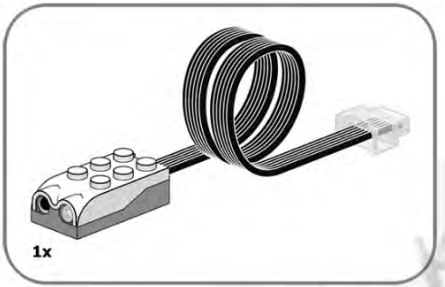

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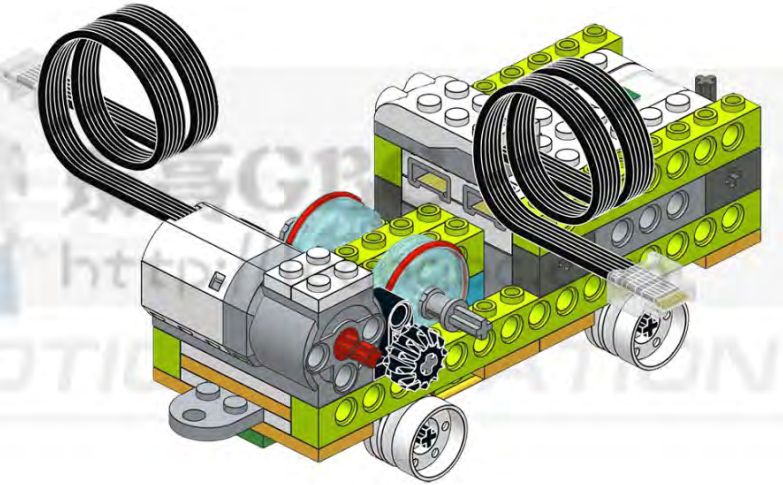

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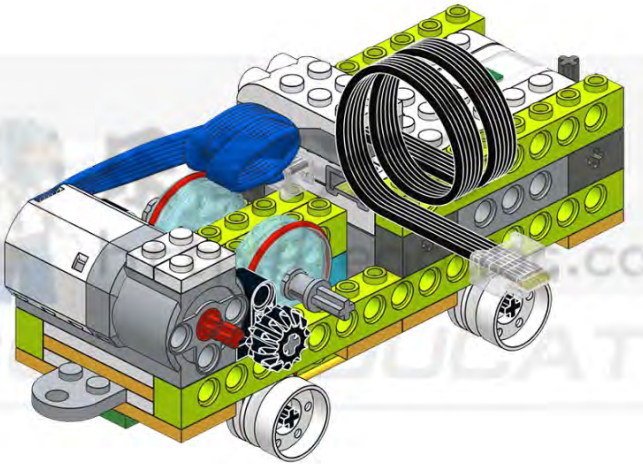

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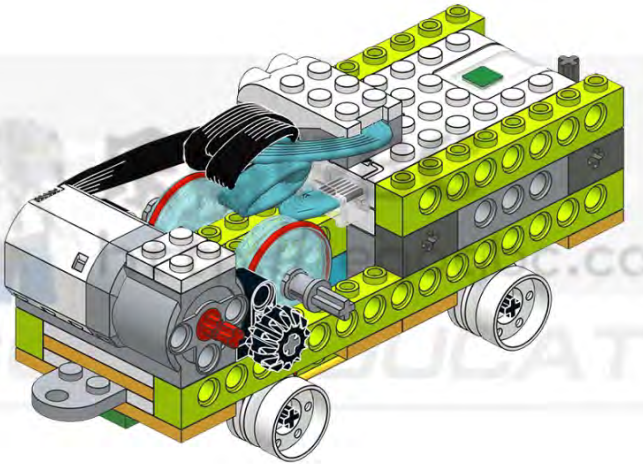

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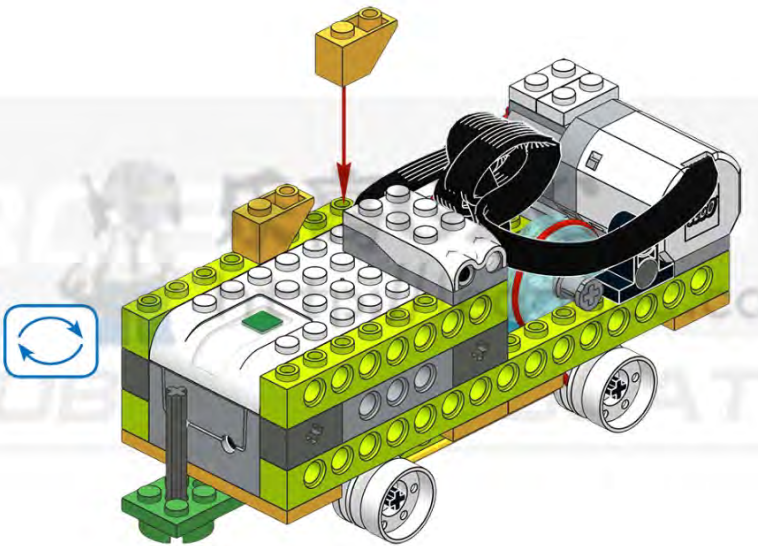

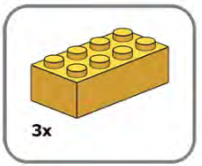

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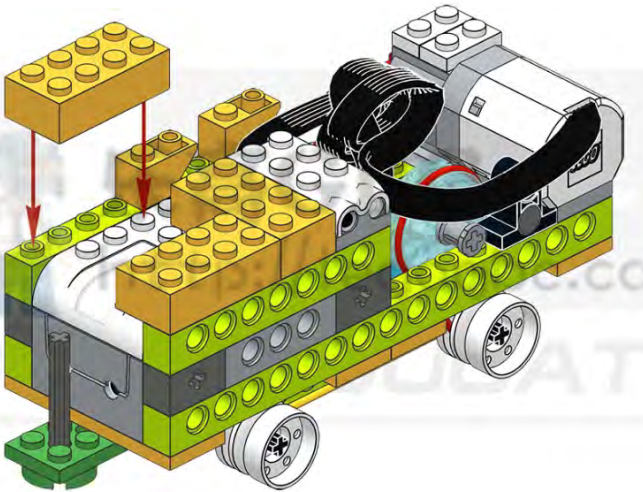

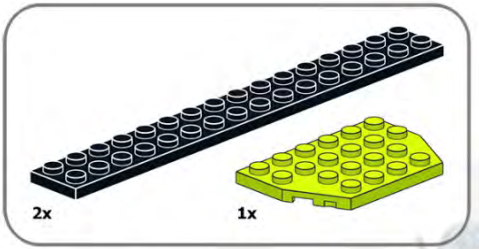

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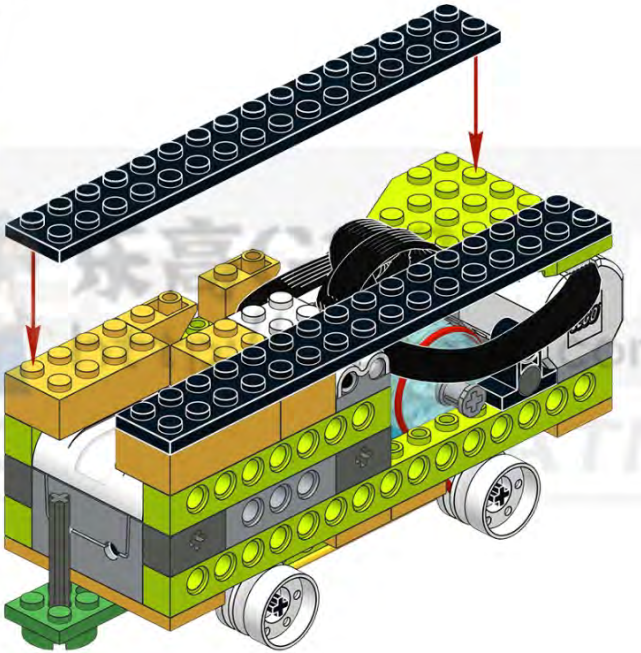

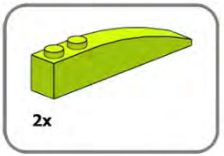

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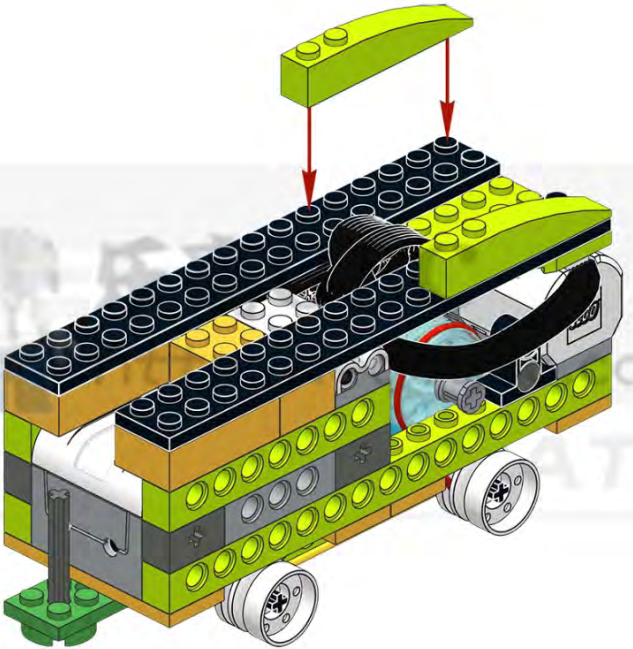

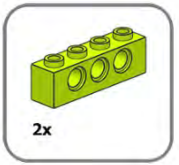

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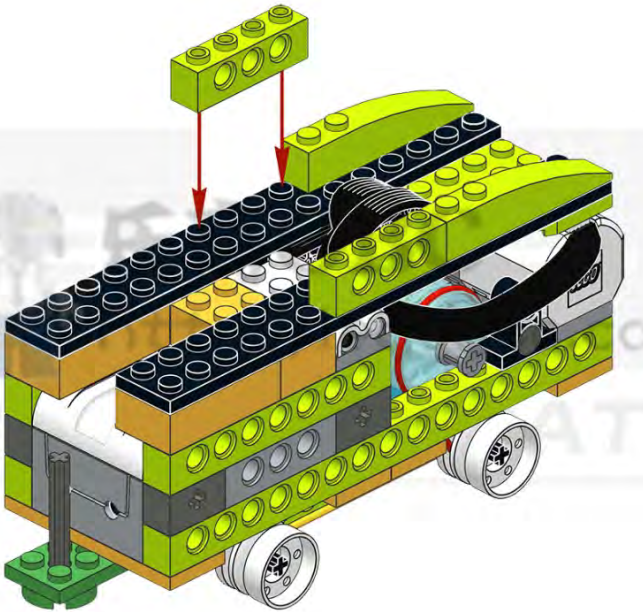

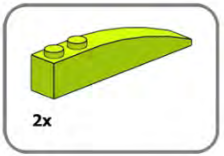

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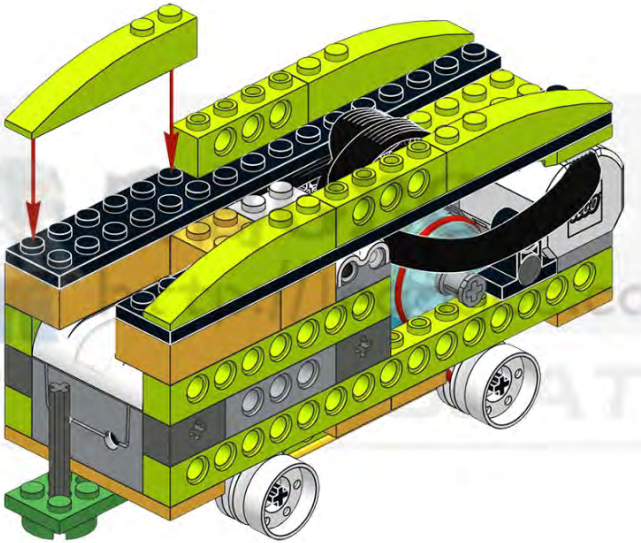

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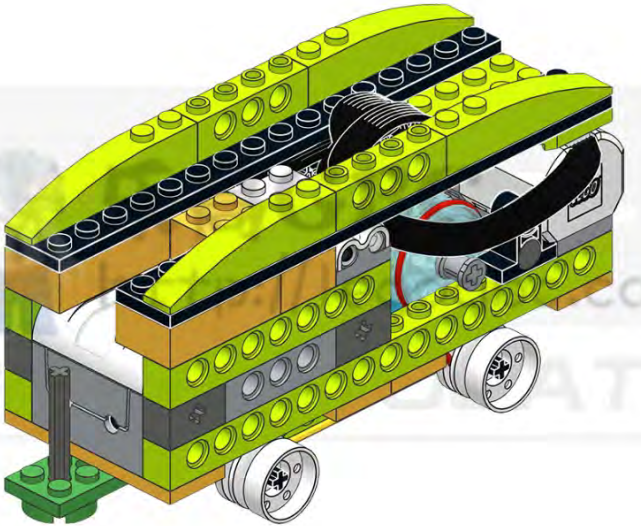
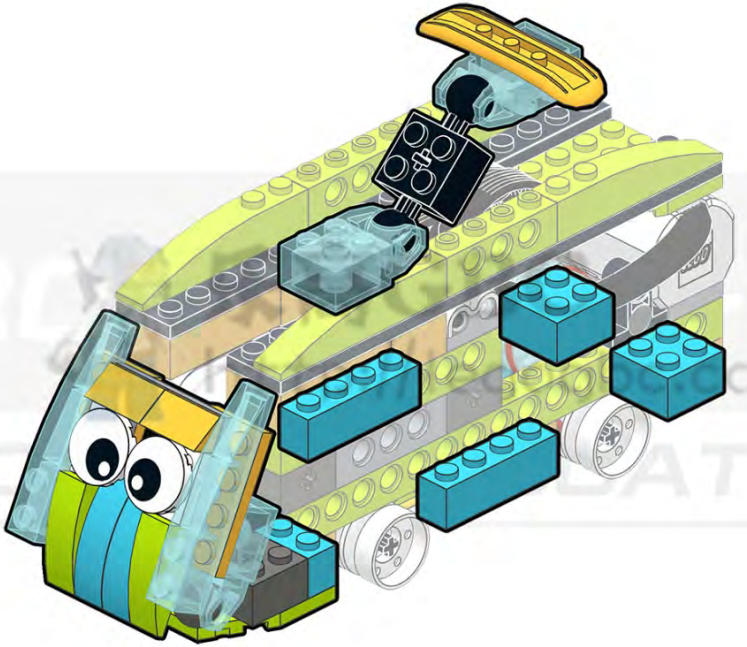
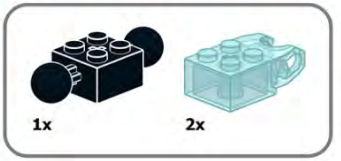


The first car

Complete the pantograph and nose cone to form the first car of the train.

Go to the first slide of the instruction





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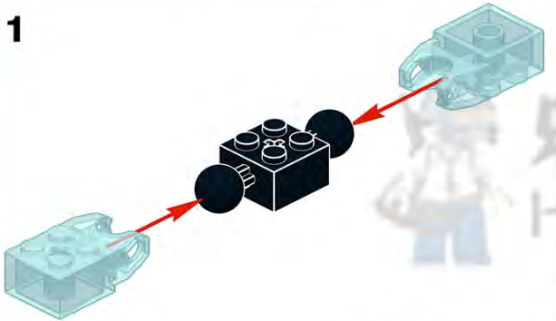

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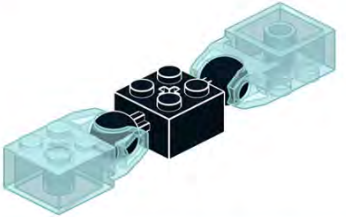

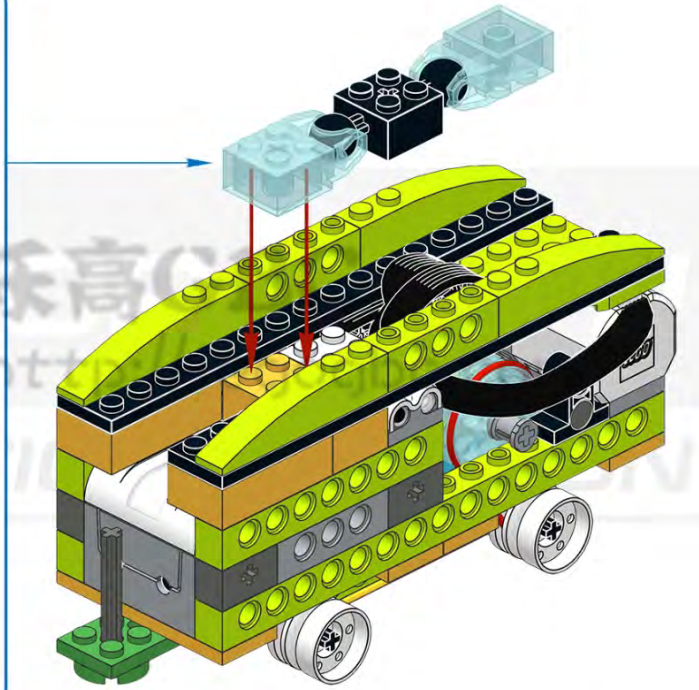

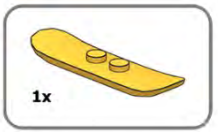

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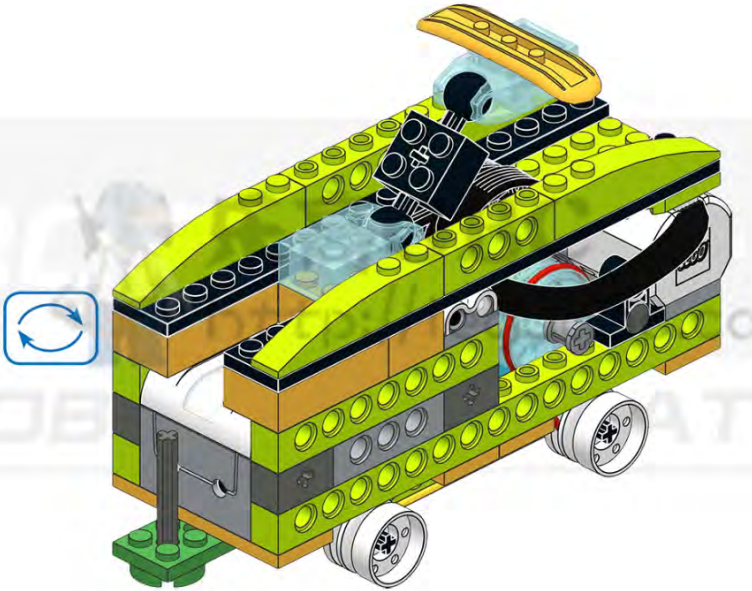

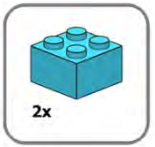

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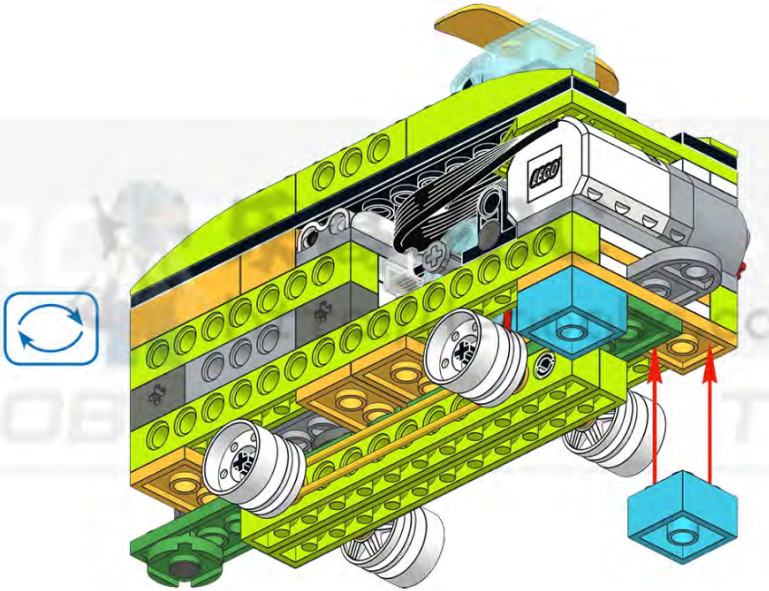

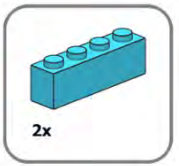

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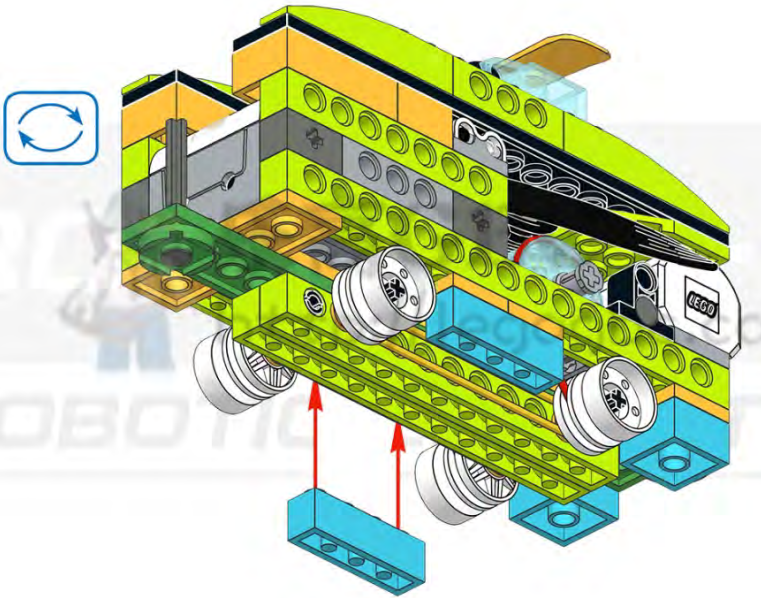

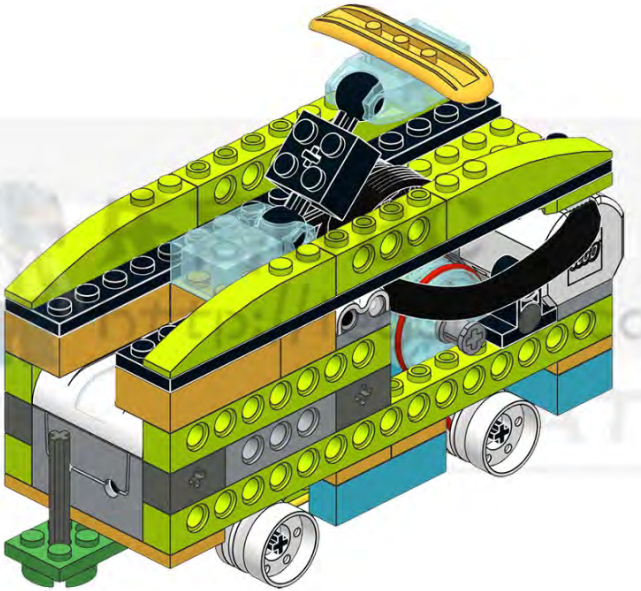

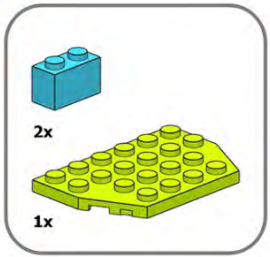

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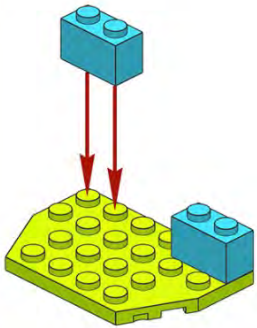

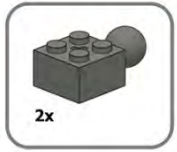

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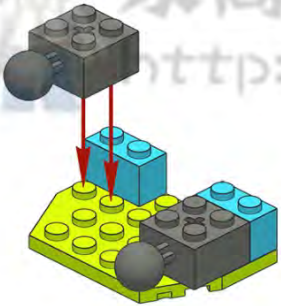

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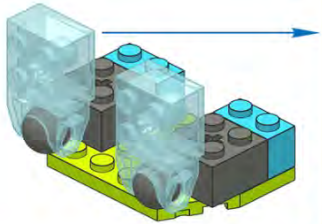

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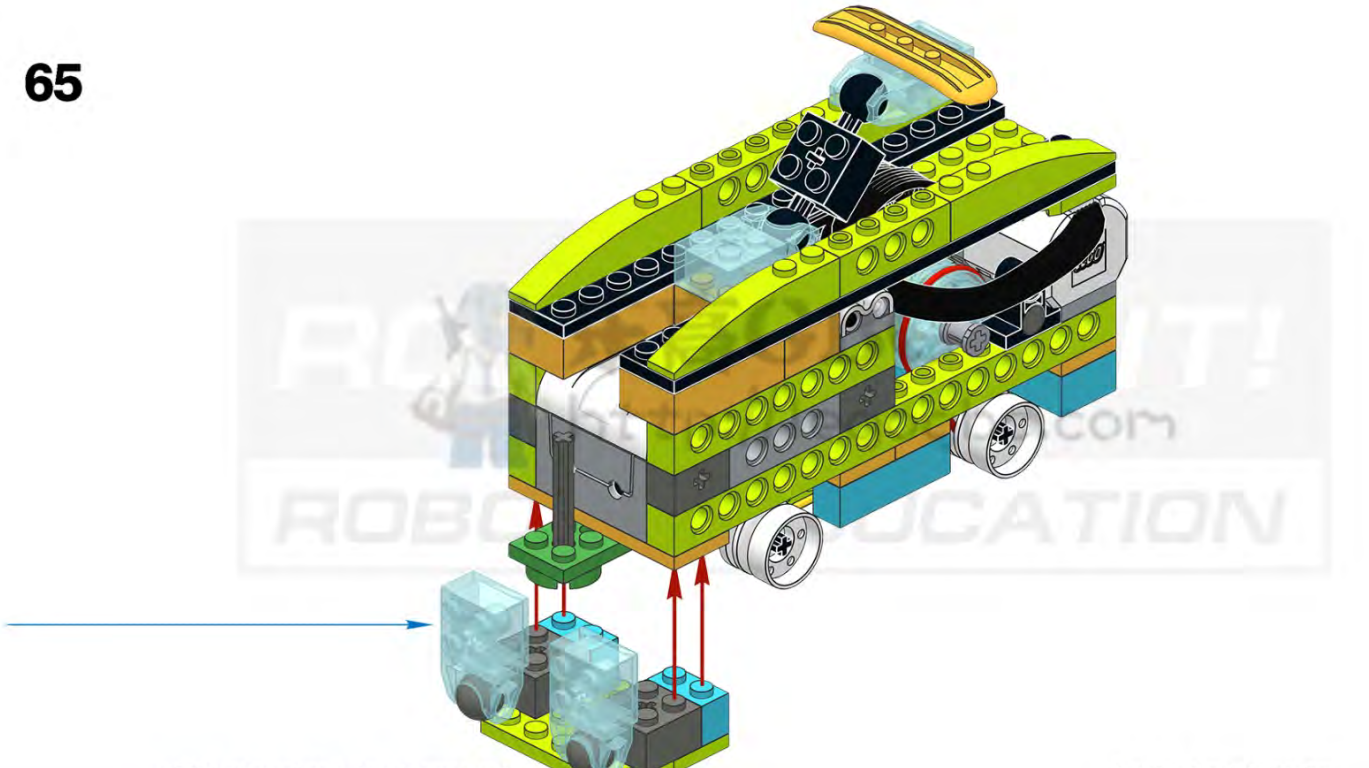

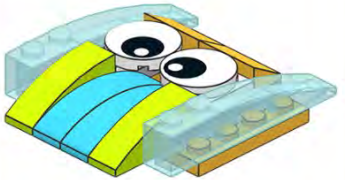

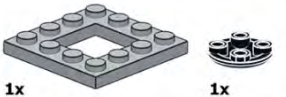

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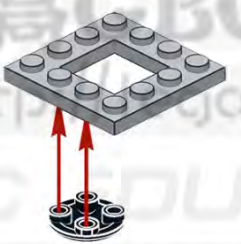

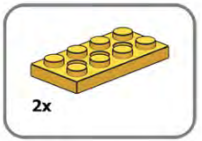

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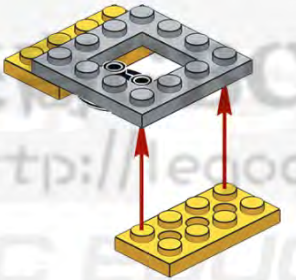

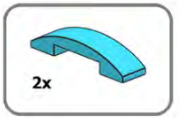

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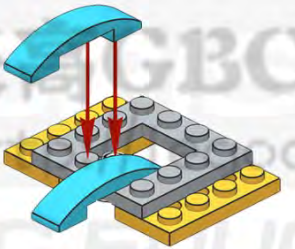

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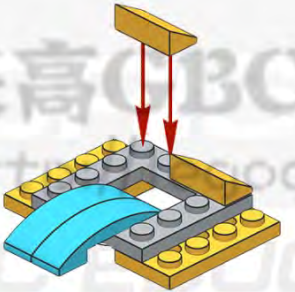

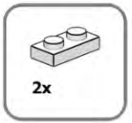

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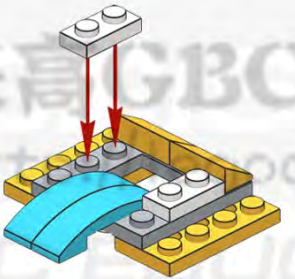

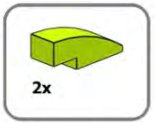

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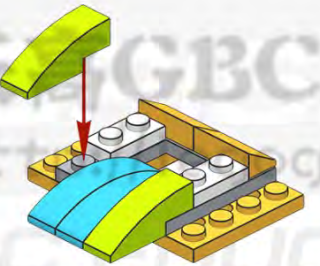

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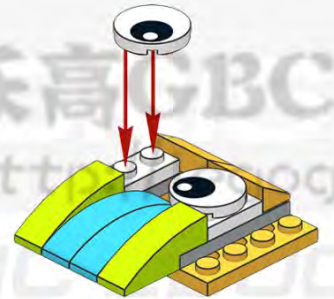

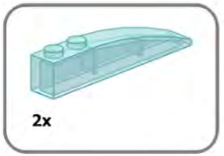

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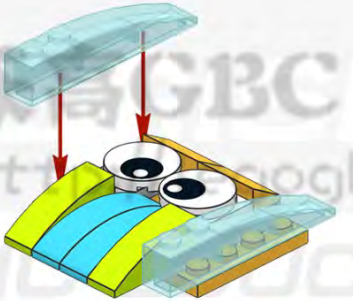
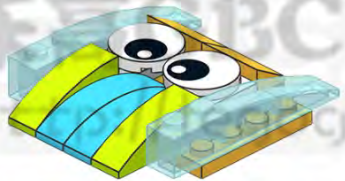
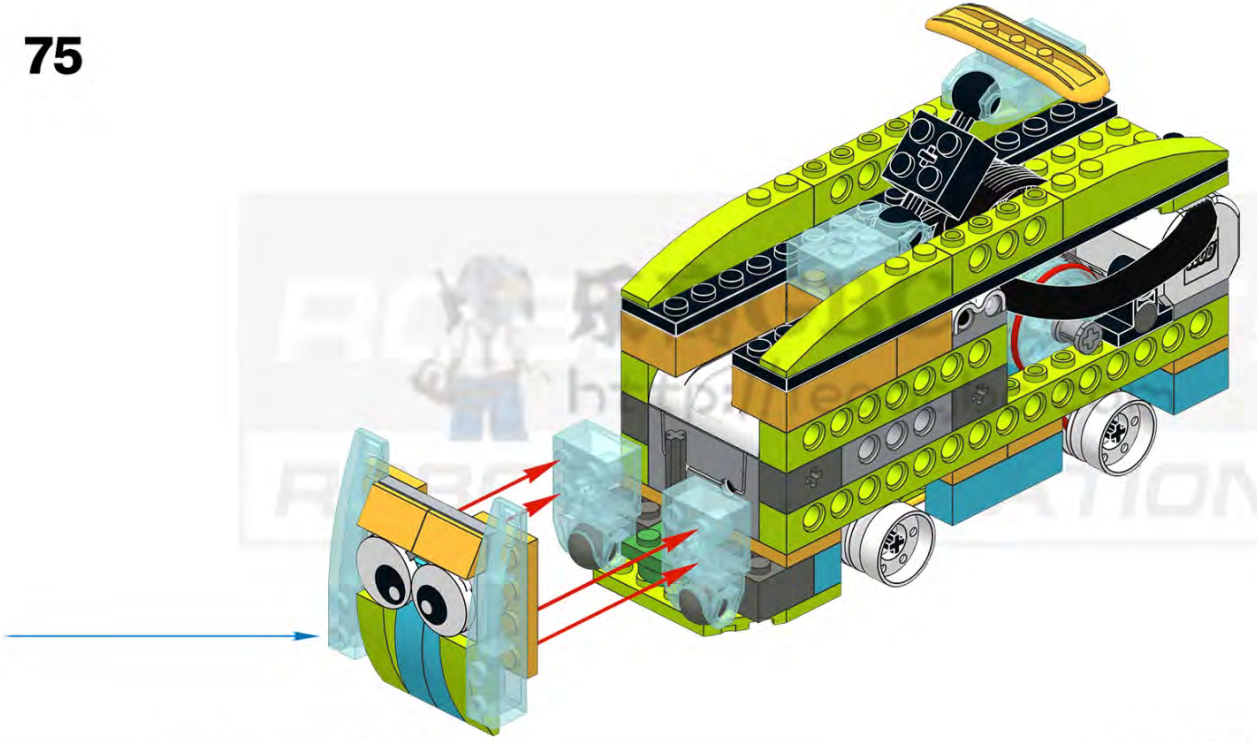
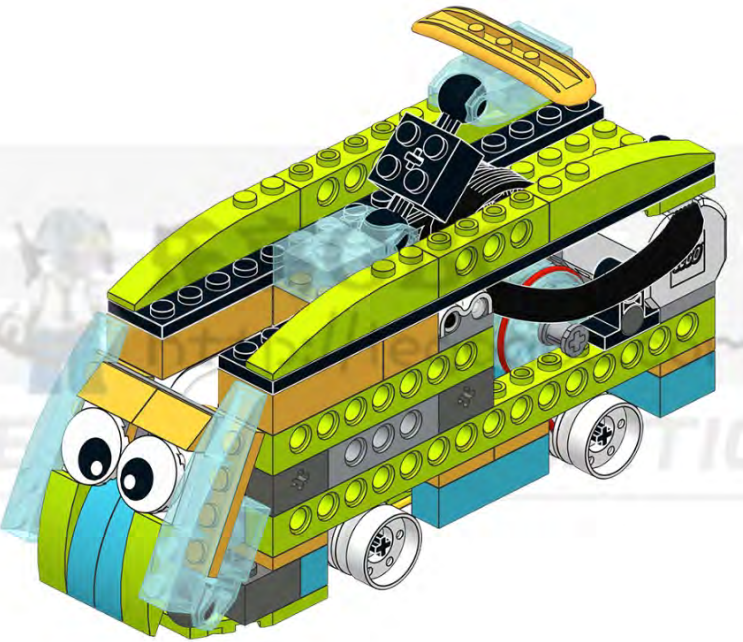




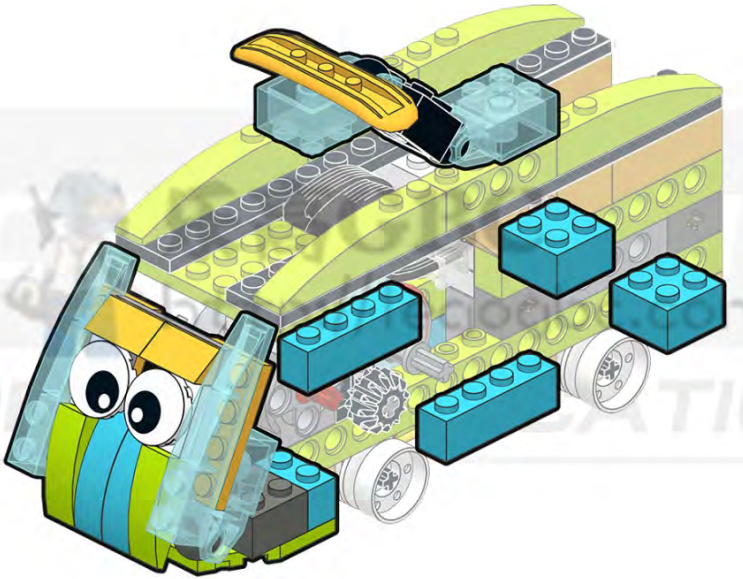


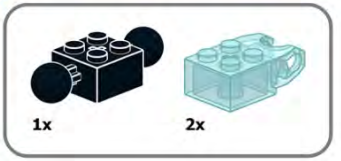


The last carriage

Complete the pantograph and fairing to form the last car of the train

Go to the first slide of the instruction





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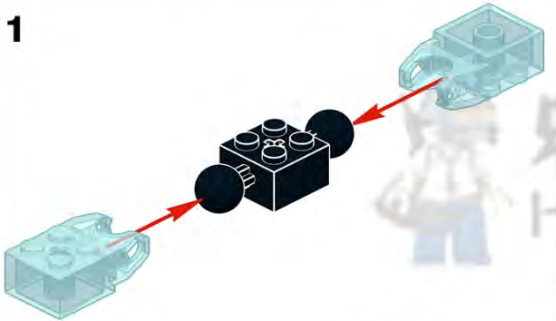

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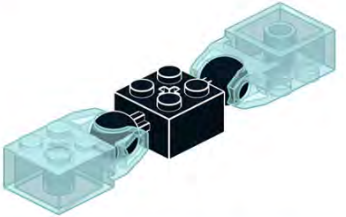

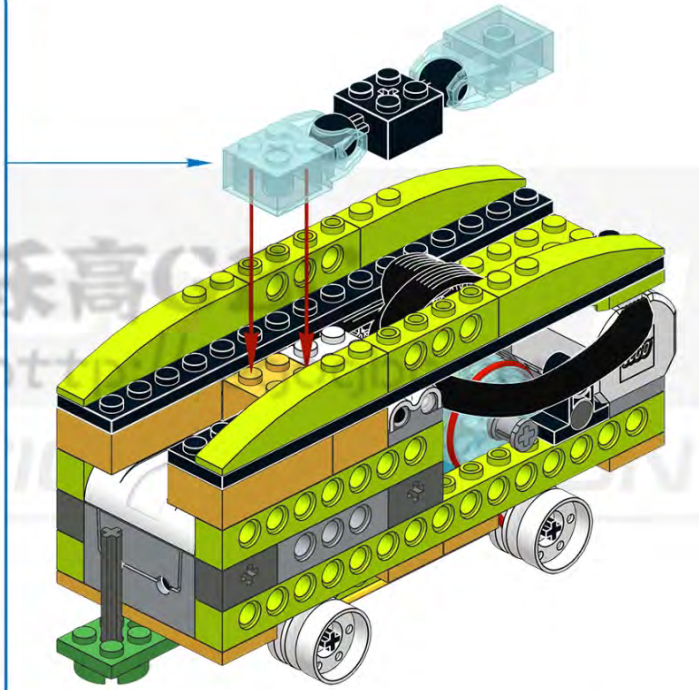

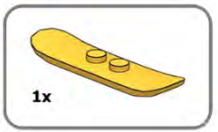

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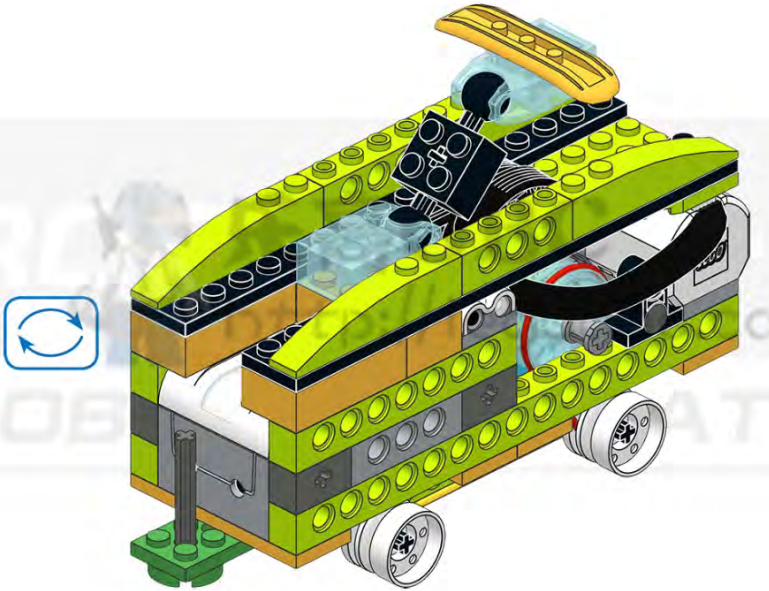

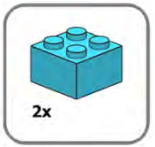

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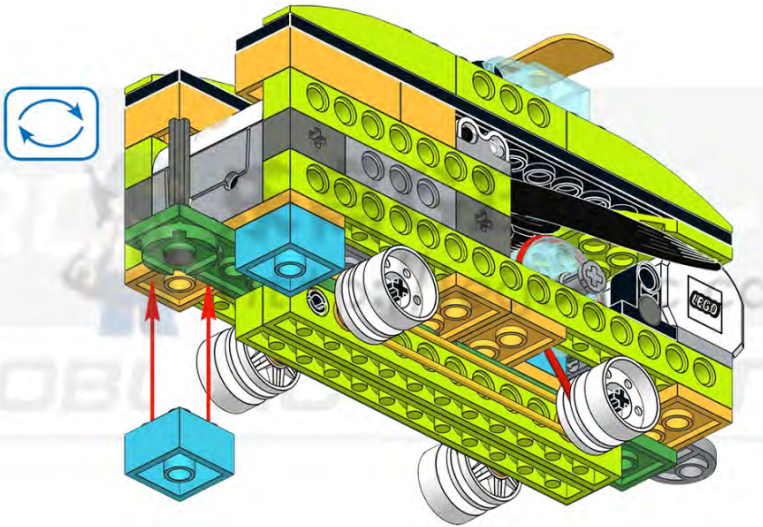

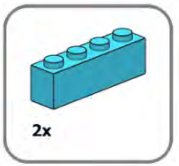

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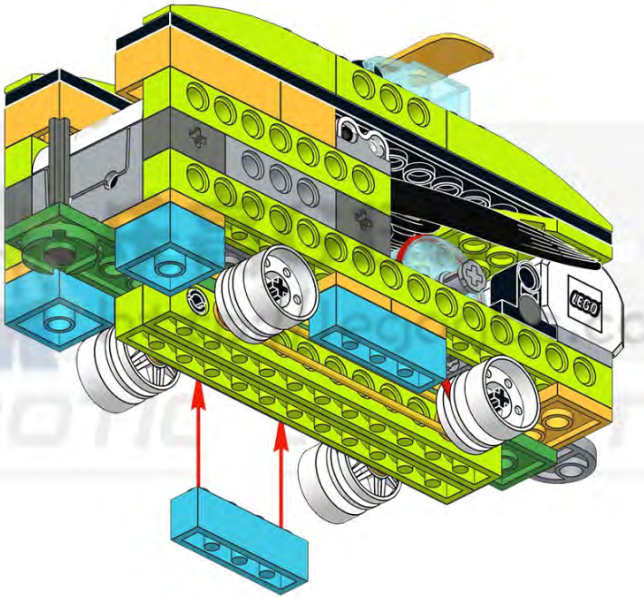

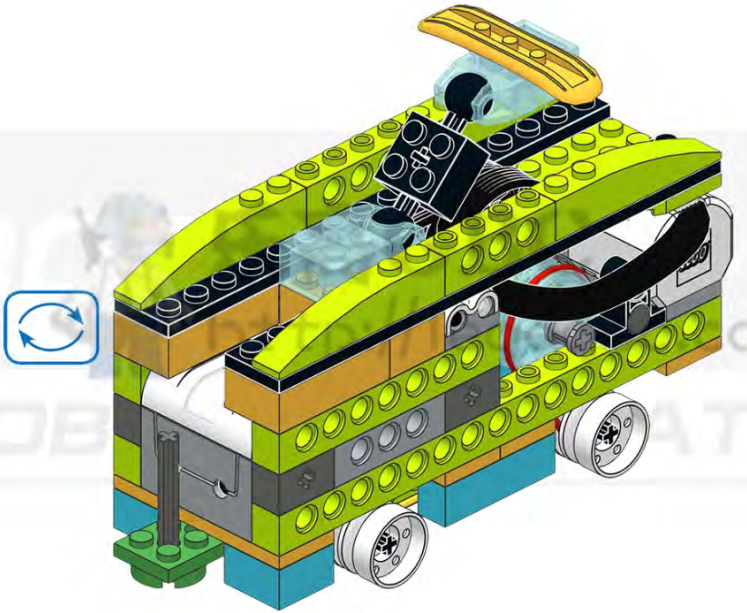

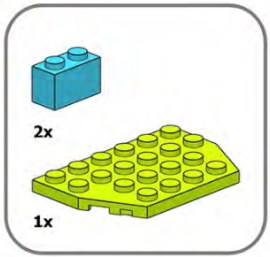

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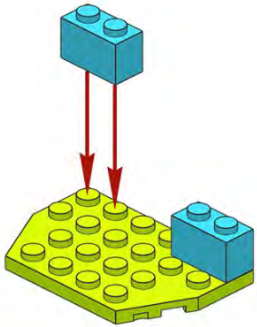

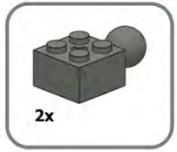

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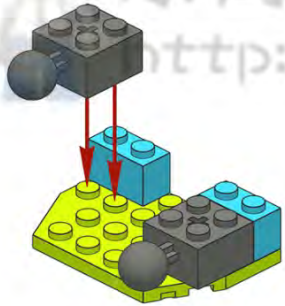

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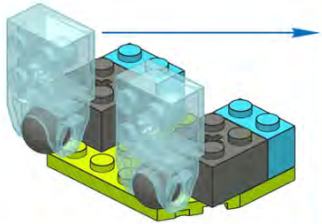

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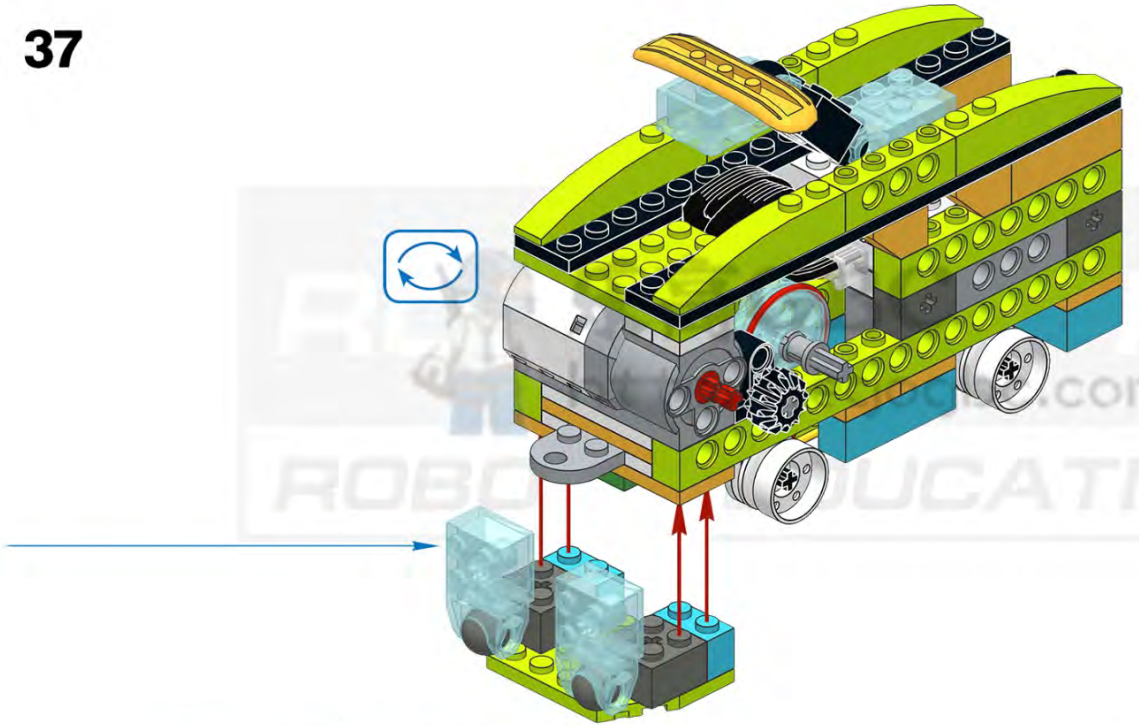

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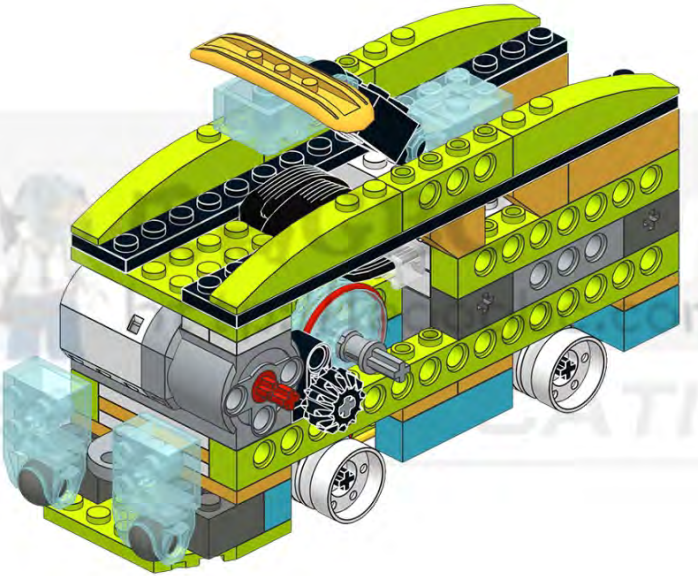

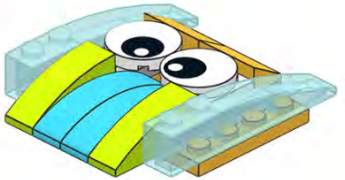

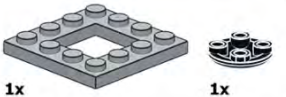

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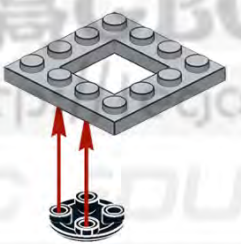

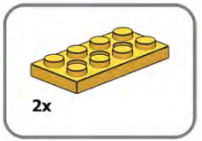

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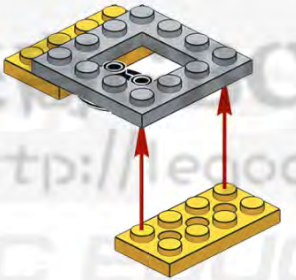

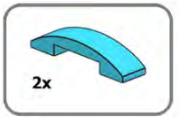

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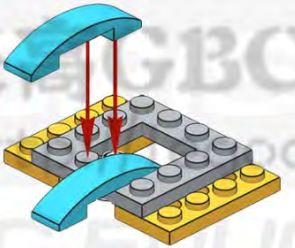

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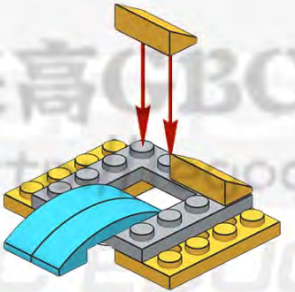

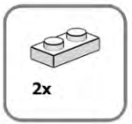

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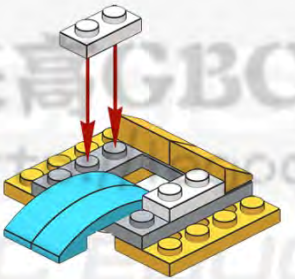

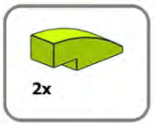

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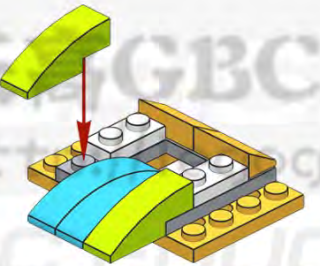

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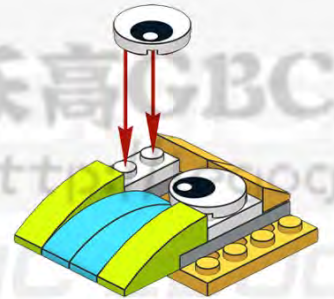

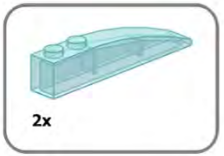

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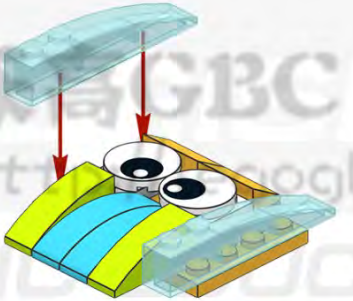

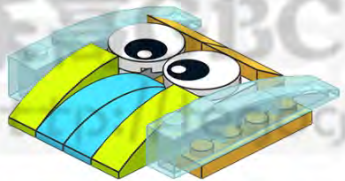

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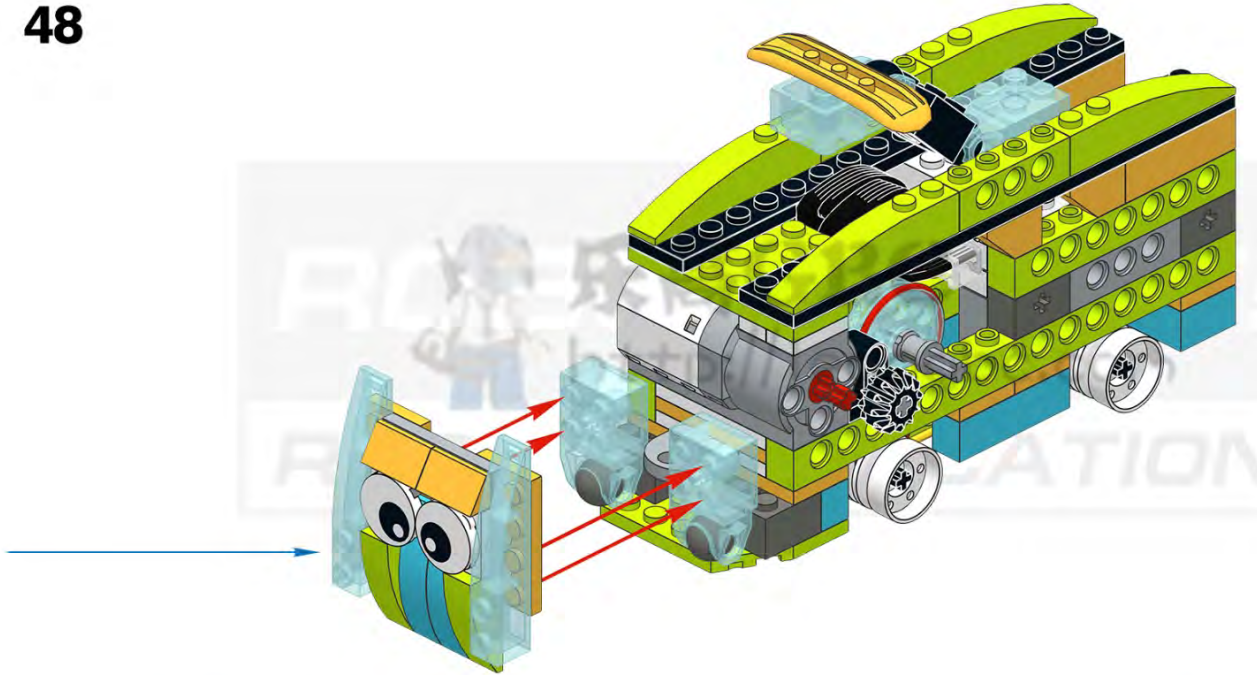

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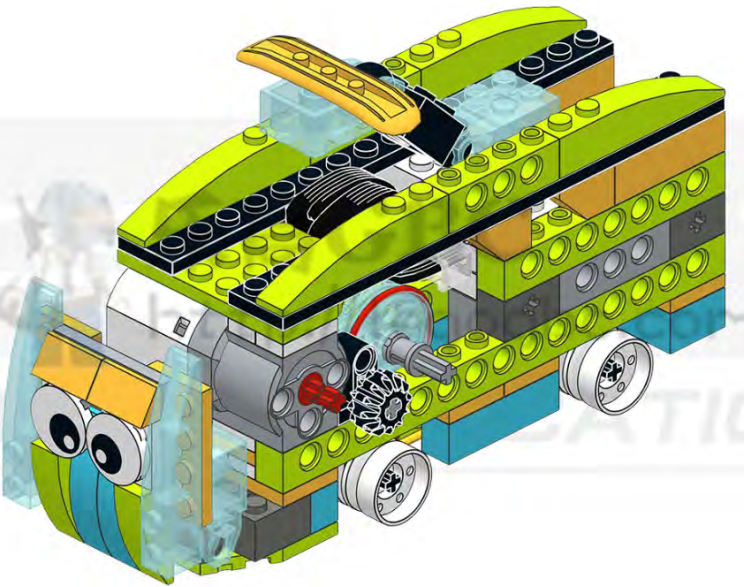

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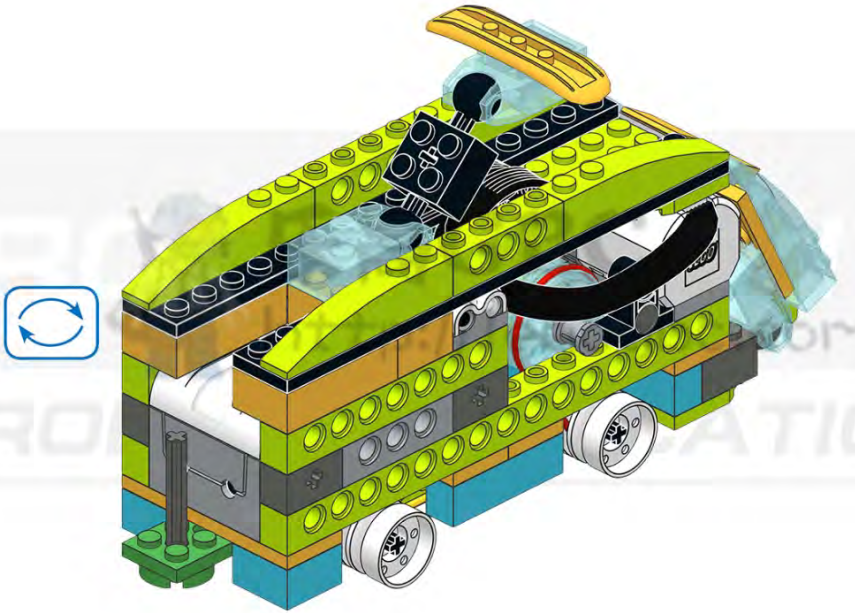
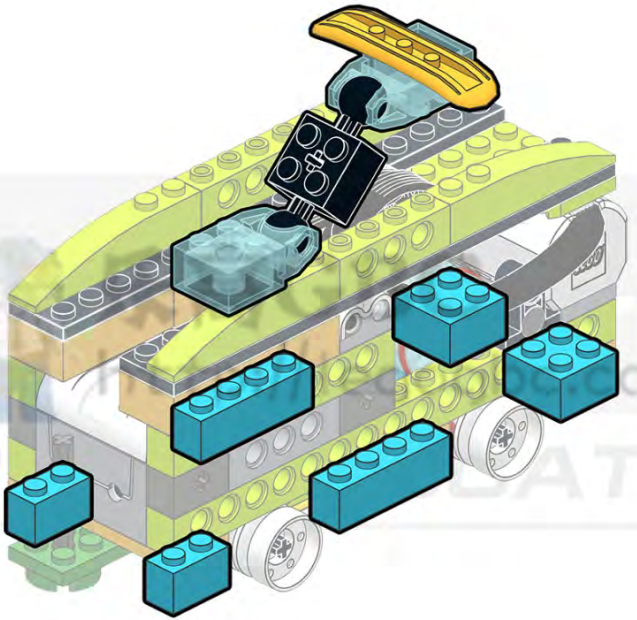
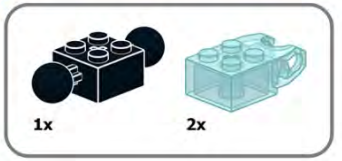


Wagon, extended version

Complete the pantograph

Go to the first slide of the instruction





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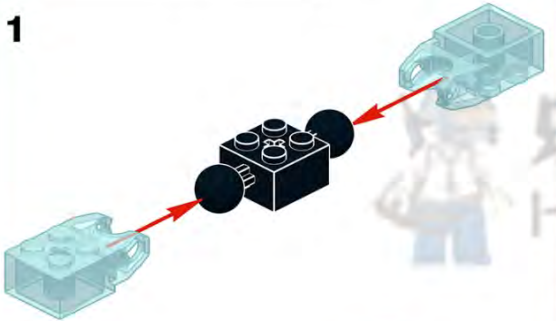

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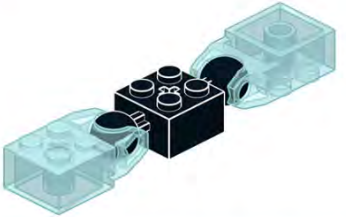

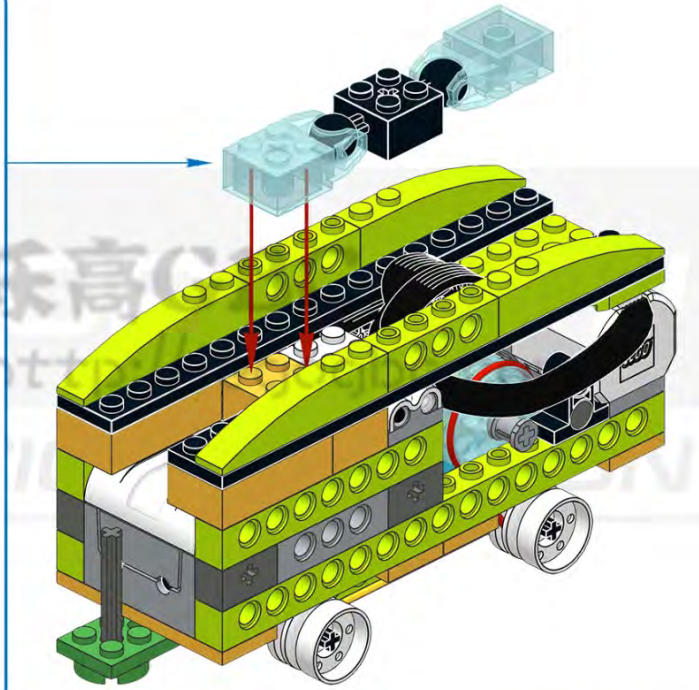

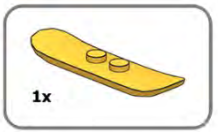

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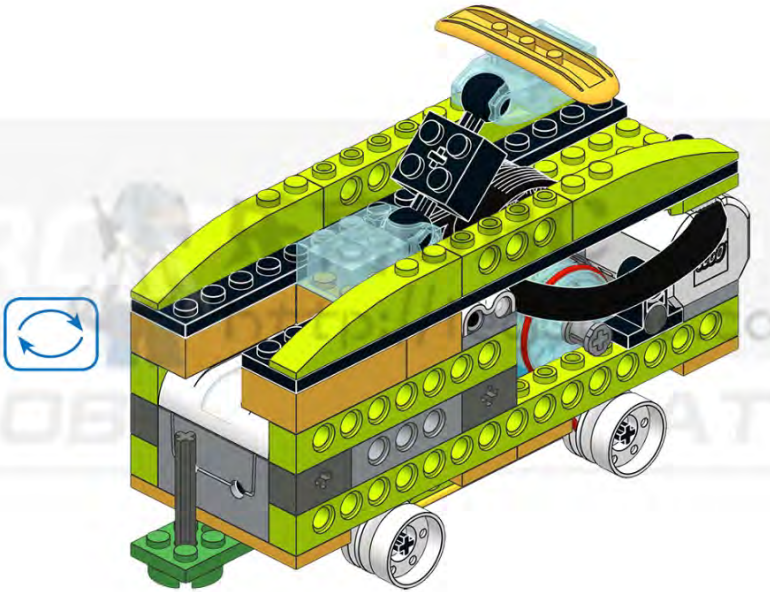

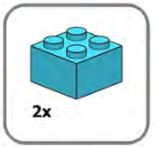

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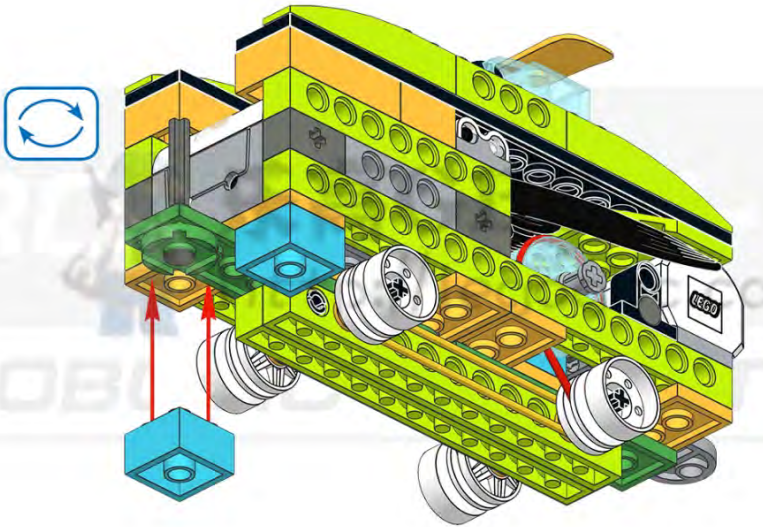

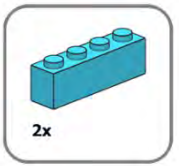

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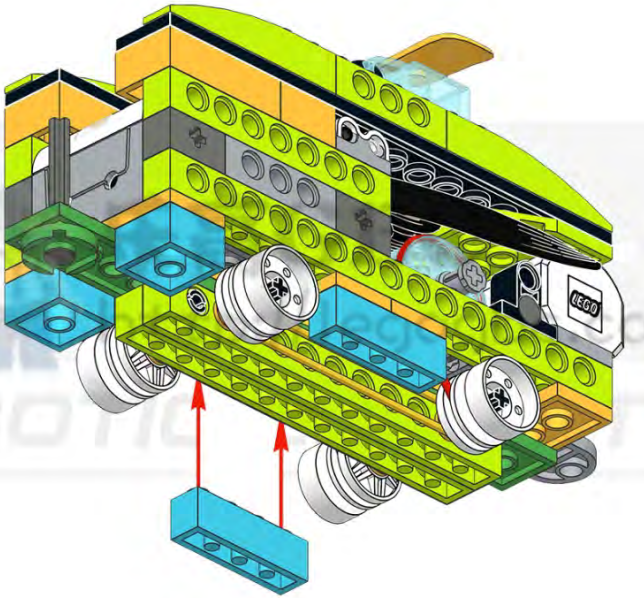

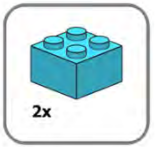

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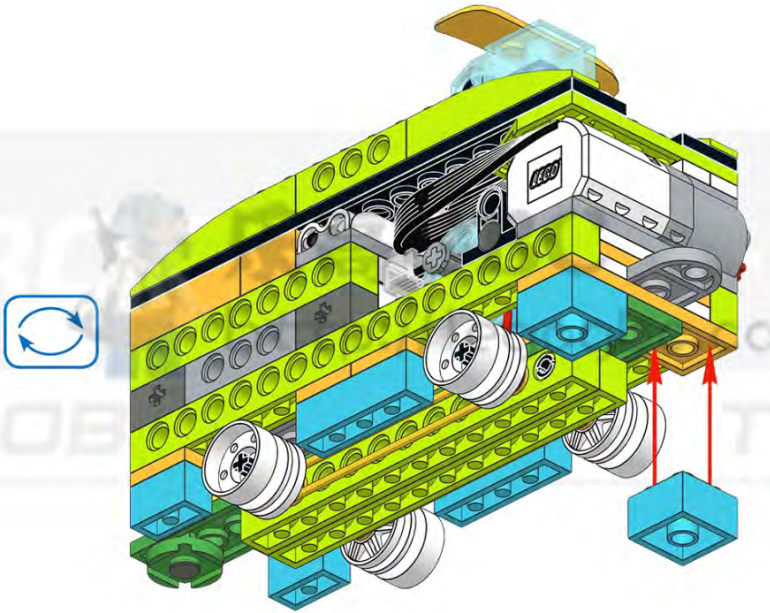

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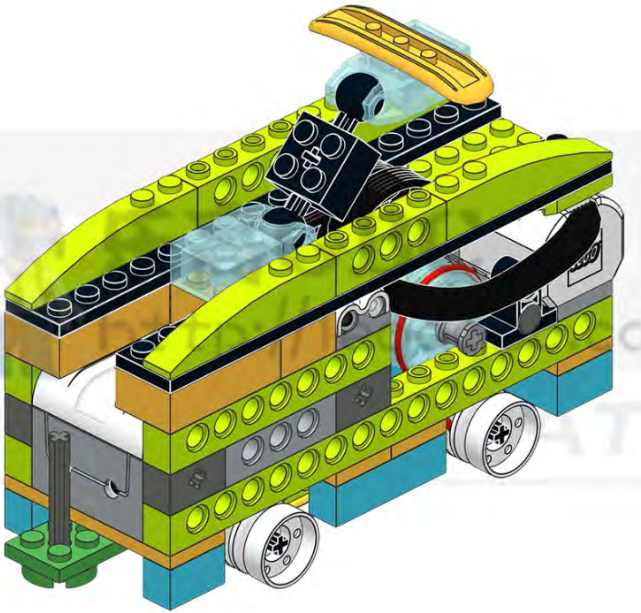


Note!

The cabels must not rub while the robot is moving!

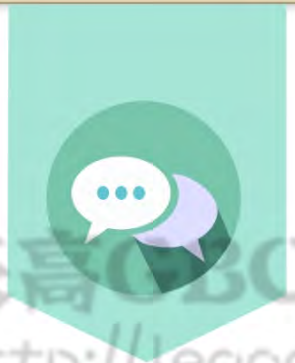
Tasks

Place the robot parts in the correct places

Task 1

Check the transmission of the robot. We received information that some of the details may be missing in it. Determine what exactly isn't working

Discuss!



How can a robot's transmission be repaired?
What details are needed for this?

Task 2

One possible solution is to use a direct gear train. Install the drive and driven gears. The 12 teeth gear will act as an idler (parasitic) gear.

Task 3

Program the motion controls of the robot using a motion sensor.

Task 3. Program

Scratch | WeDo Software

Program the robot controls with gestures.

In the Scratch 3.0 programming environment, the program looks like this:

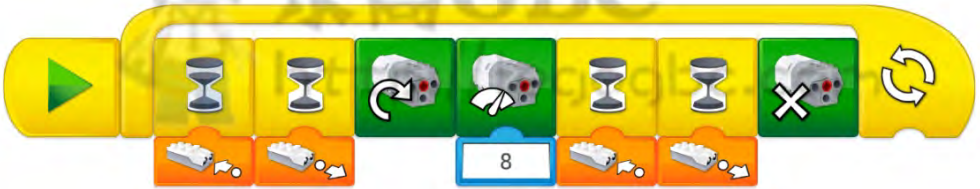
The robot starts moving and stops after detecting a wave of the hand

Task 3. Program

Scratch | WeDo Software

Program the robot controls with gestures.

In WeDo Software, a similar program looks like this:



Task 4 *

Try programming the robot to start with a loud bang. Modify and test the program.

Task 5

Combine the carriages into a train and test synchronized start and stop.

Discuss!

Why is it better to activate the carriages from head to tail for a synchronized start, and from tail to head for a stop?

Task 6

Try to synchronize the movement of the carriages at different speeds of the train. One of the teams must choose the speed of movement and communicate it to the others by changing the color of the illumination of the Smarthub.

Task 6. Program

Scratch | WeDo Software

Modify the program you wrote as follows:

Task 6. Program

Scratch | WeDo Software

Modify the program you wrote as follows:

Task 7 *

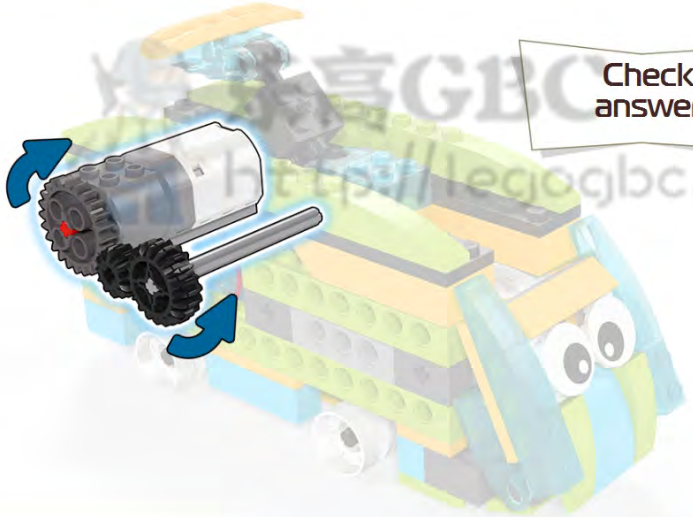
Your train can move on rails. If possible, test this motion as well.

Question

Which of the gears shown can slip?

Tasks

What will be the direction of rotation of the driven gear?



Check answer

Question

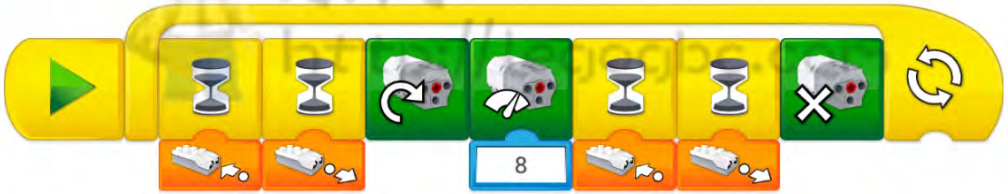
Scratch | WeDo Software

Which program block is responsible for repeating the program?

Question

Scratch | WeDo Software

Which program block is responsible for repeating the program?



Discuss!

- Why didn't the robot's transmission work?
- What gear did you use to fix the robot's transmission?
- What is an idler gear, what functions does it perform?
- How many gears were used in the robot?
- Why does such a robot have four-wheel drive?
- How did you synchronize the start and stop of the train?

Your achievements

Total: 0

1

2

3

4