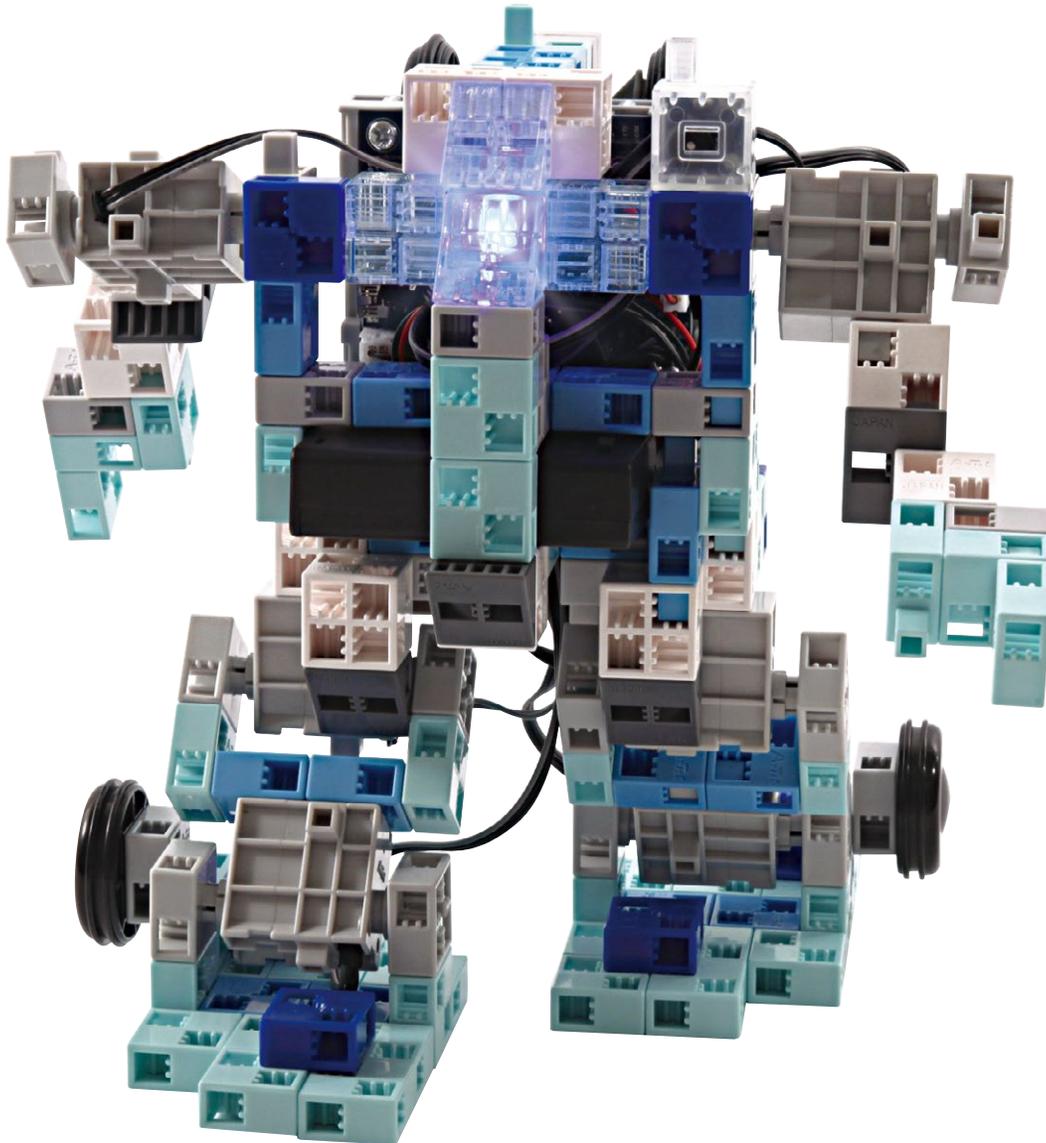


# Transforming Robot

## Assembly Instructions



**Artec Co., Ltd.**

Address: 3-2-21 Kitakamei-cho, Yao-shi, Osaka  
581-0066 Japan

E-mail: [export@artec-kk.co.jp](mailto:export@artec-kk.co.jp)

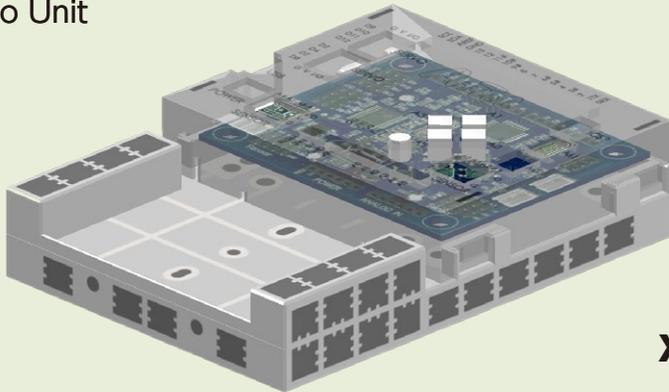
Website: [www.artec-kk.co.jp/en](http://www.artec-kk.co.jp/en)

**Artec**<sup>®</sup> is a registered trademark of Artec Co., Ltd.  
in multiple countries including Japan, South Korea,  
Canada, and the USA.

# Transforming Robot

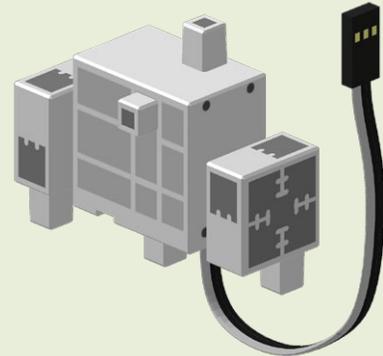
## Components

Studuino Unit



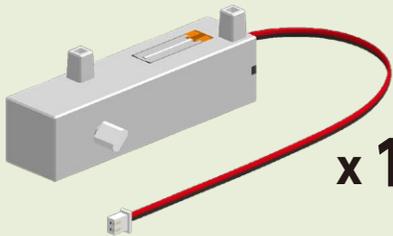
x 1

Servomotor



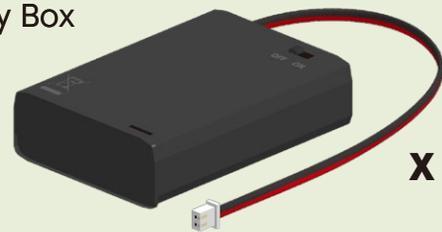
x 6

DC Motor



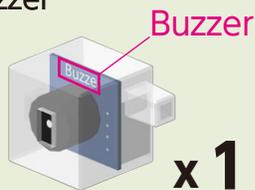
x 1

Battery Box



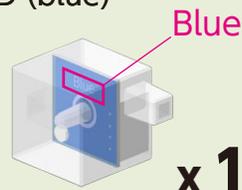
x 1

Buzzer



x 1

LED (blue)



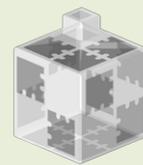
x 1

Basic Cube (white)



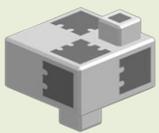
x 11

Basic Cube (clear)



x 2

Half A (light gray)



x 11

Half B (blue)



x 11

Half C (light aqua)



x 53

Half D (aqua)



x 20

Triangle A (gray)



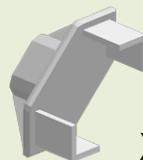
x 5

Triangle A (clear)



x 2

Hub



x 2

Wheel



x 4

O-ring



x 2

USB Cable



x 1

Sensor Connecting Cable  
(three-wire 15 cm)



x 2

Extension Cable for  
Servomotors



x 2

# Transforming Robot

## Assembly Instruction Labels

**D11**

Shows the sticker number used for each servomotor. Use the motor with the correct sticker number.



Indicates tips or warnings when building a specific item.



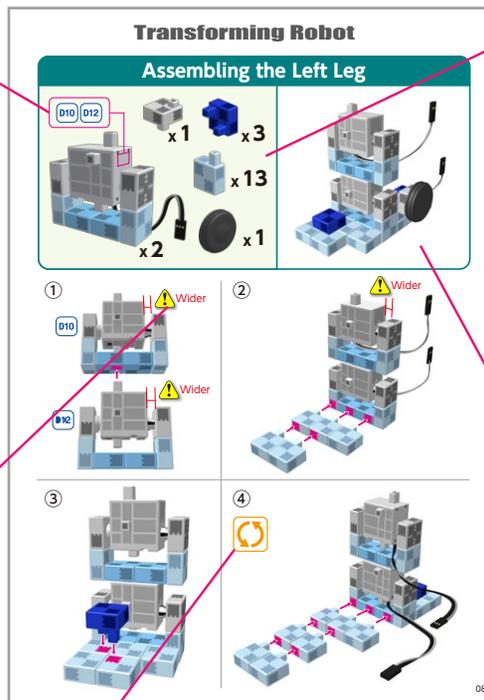
Indicates when the direction of a component must be changed for assembly.

**x 1**

Shows the parts needed for assembly. Indicates the number of parts needed for assembly.



Shows an image of the completely assembled item.



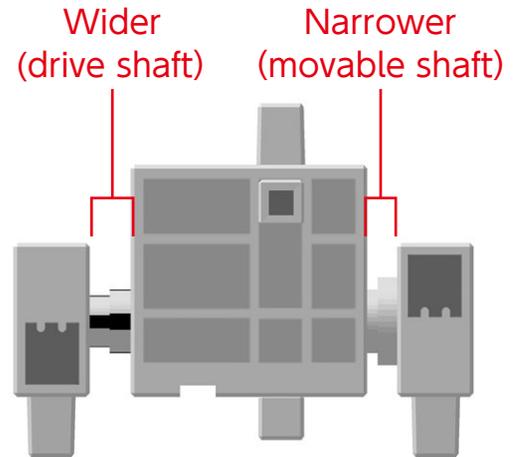
# Transforming Robot

## Handling the Servomotor

### 1 Orientation

The photo to the right shows the servomotor facing you. There are two shafts, the one with the wider space is the drive shaft and the one with the narrower space is the movable shaft.

- ★ When turning the drive shaft by hand, do so very slowly and gently. Excessive pressure when turning may cause damage to the servomotor.



### 2 Calibration and Setting Connector Numbers

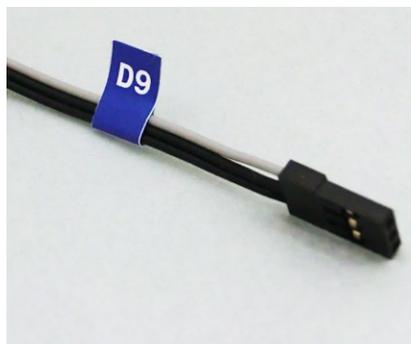
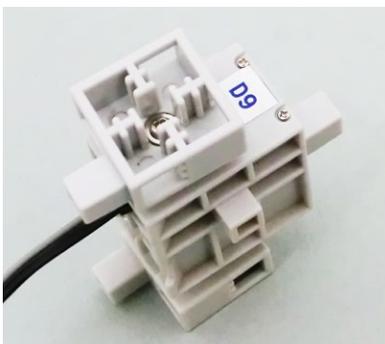
Before building your robot, read **6. Using Servomotors** in the **Studuino Icon Programming Environment Guide** (download from <http://www.artec-kk.co.jp/artecrobo/>) for instructions on how to calibrate your servomotor.

Building your robot without calibrating your servomotor may cause damage or improper functionality.

- ★ Do not change the connector or the servomotor after calibration. Servomotor calibrations are unique to each servomotor.

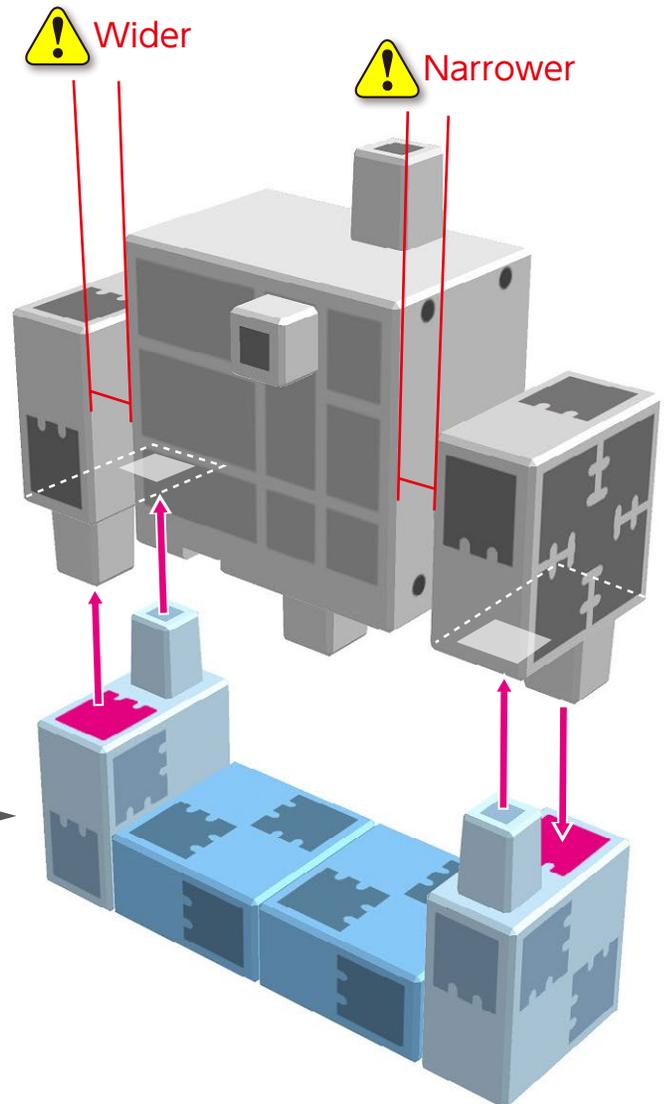
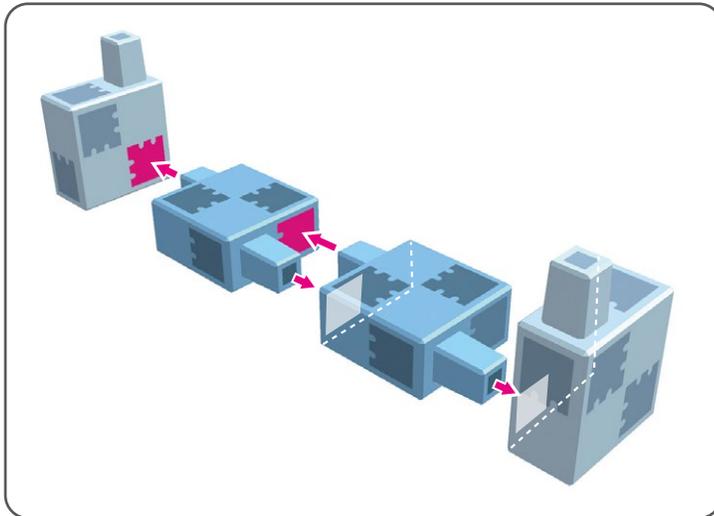
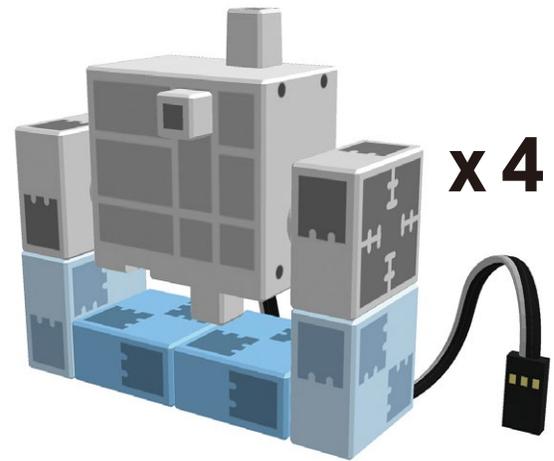
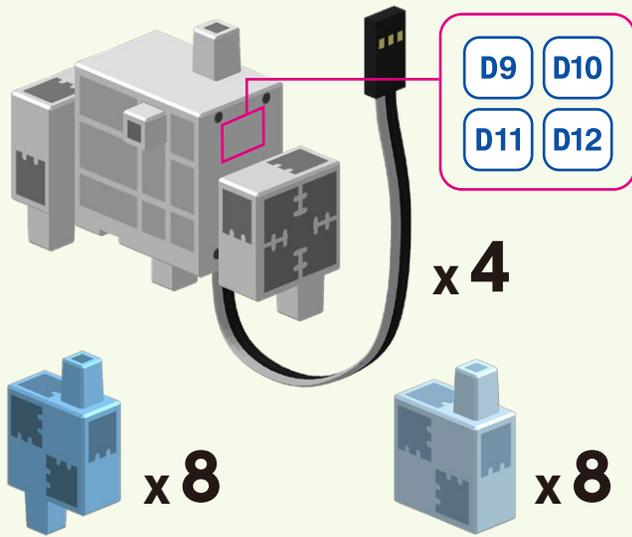
### Attaching Number Stickers

After calibration, we recommend putting a sticker on the connector used for the servomotor so it can be easily identified.



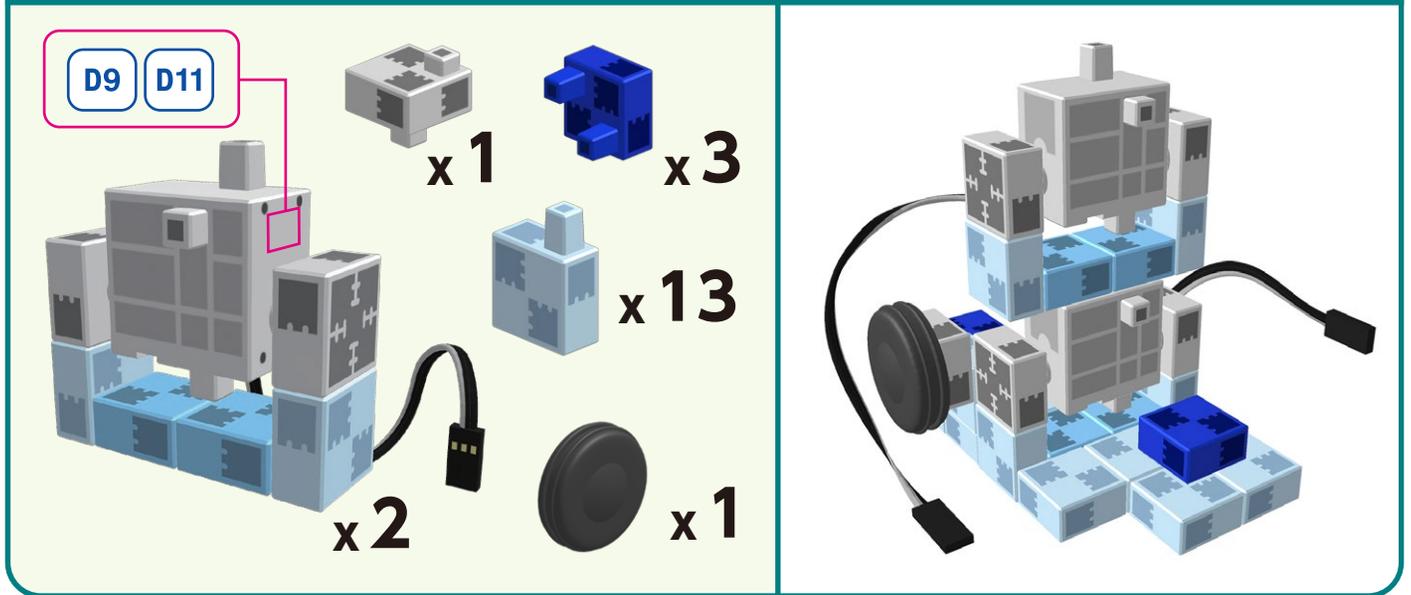
# Transforming Robot

## Assembling the Servomotor

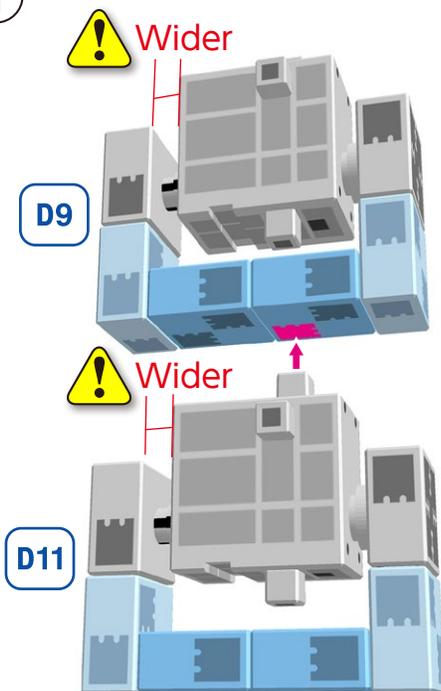


# Transforming Robot

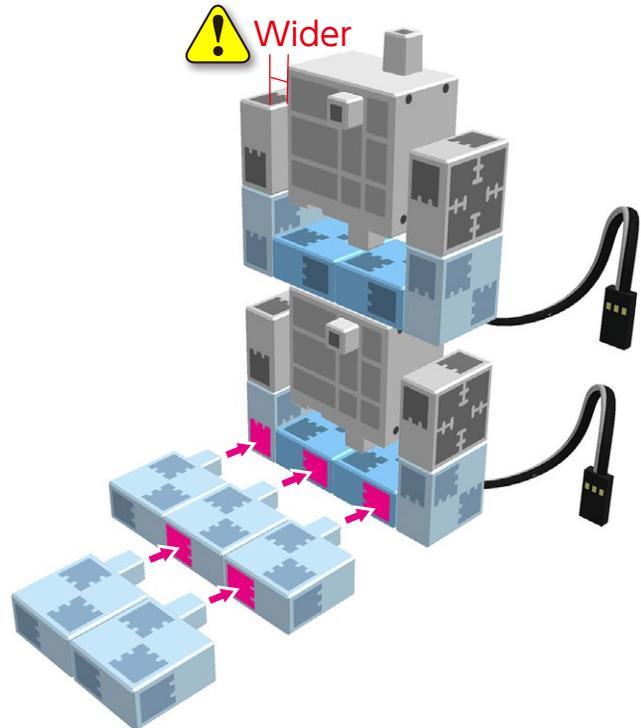
## Assembling the Right Leg



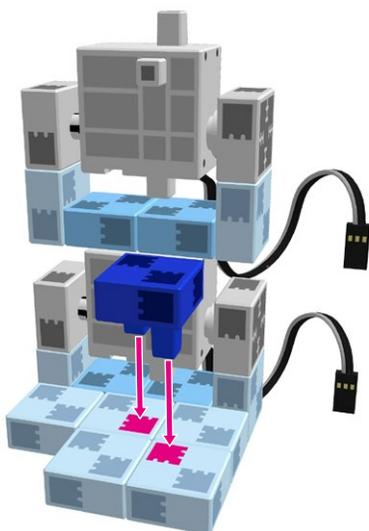
1



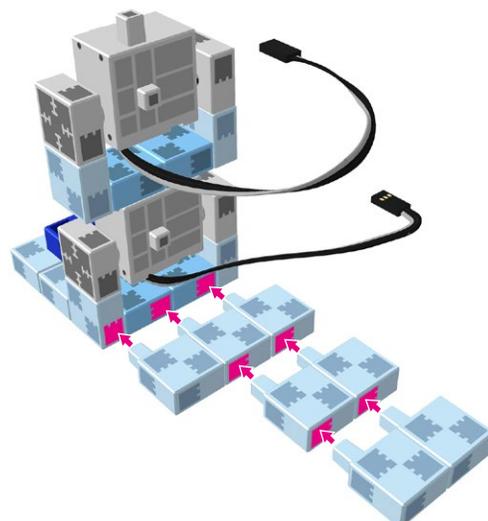
2



3

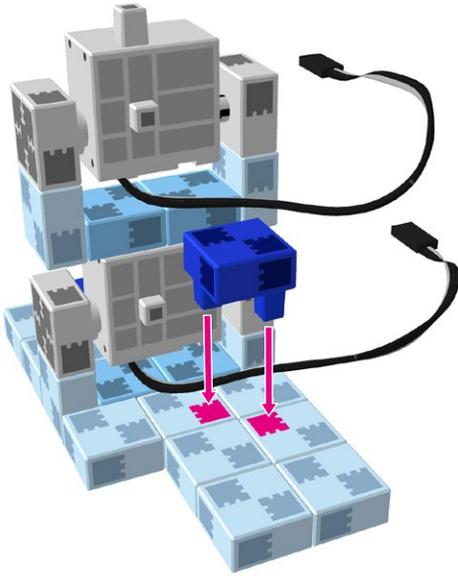


4

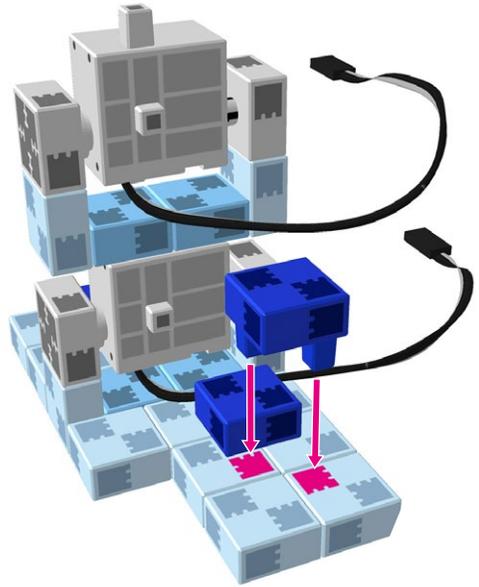


# Transforming Robot

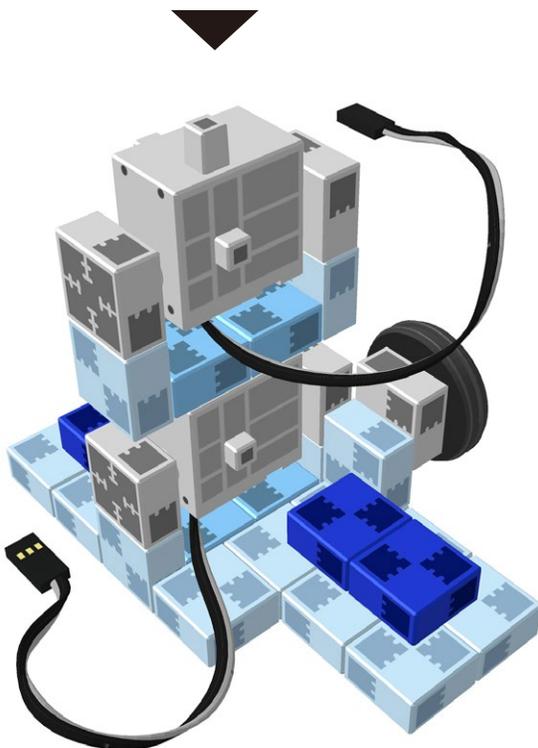
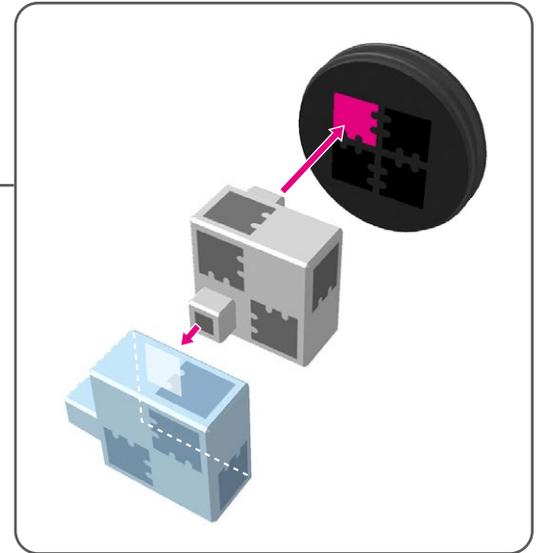
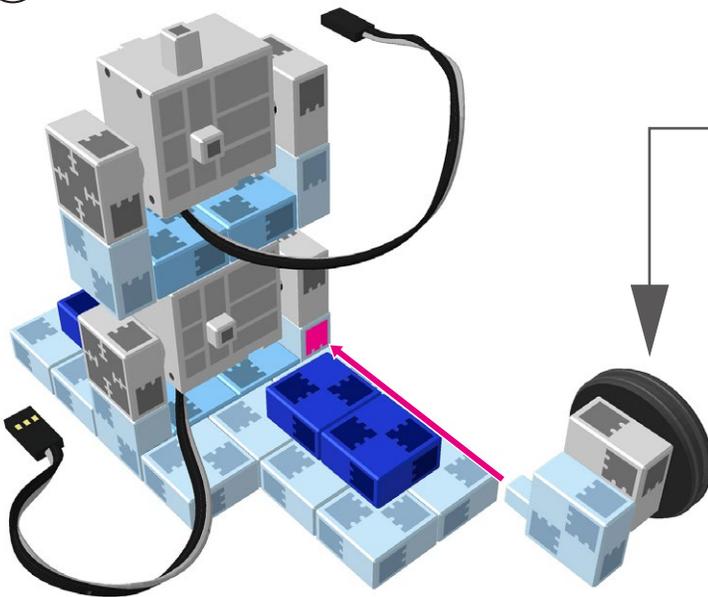
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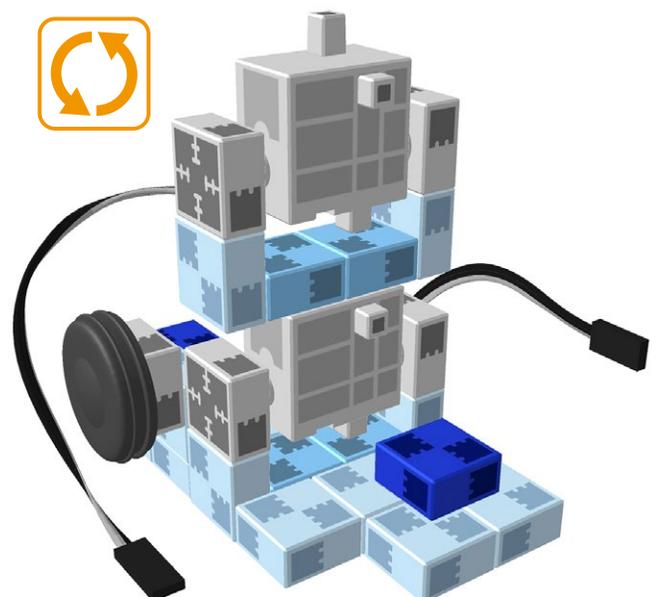
6



7

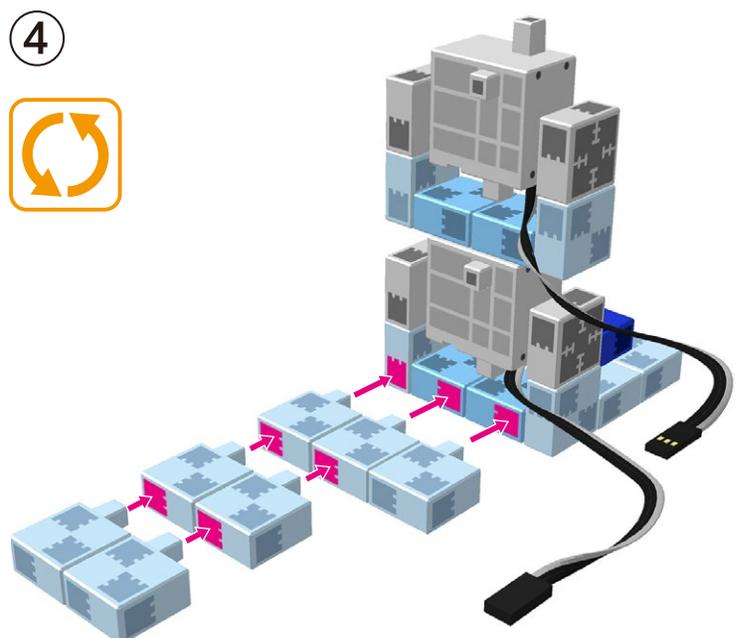
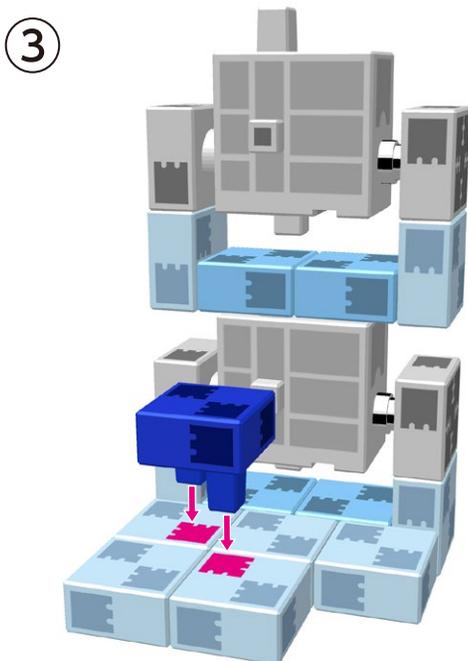
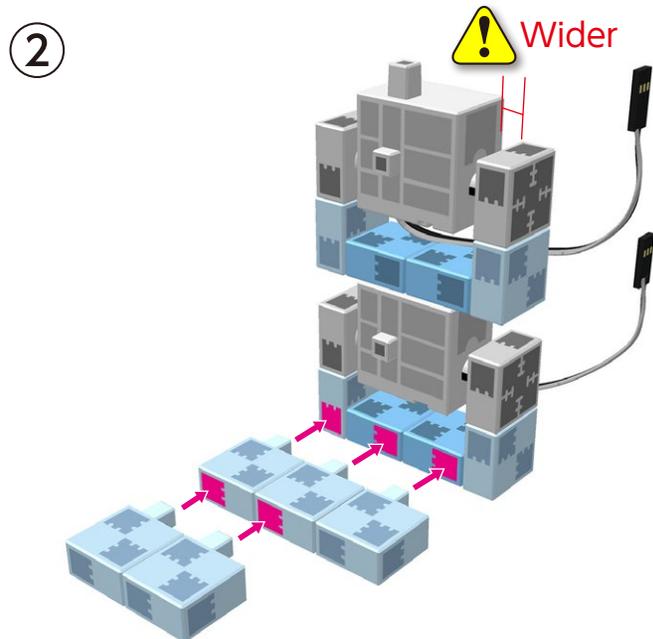
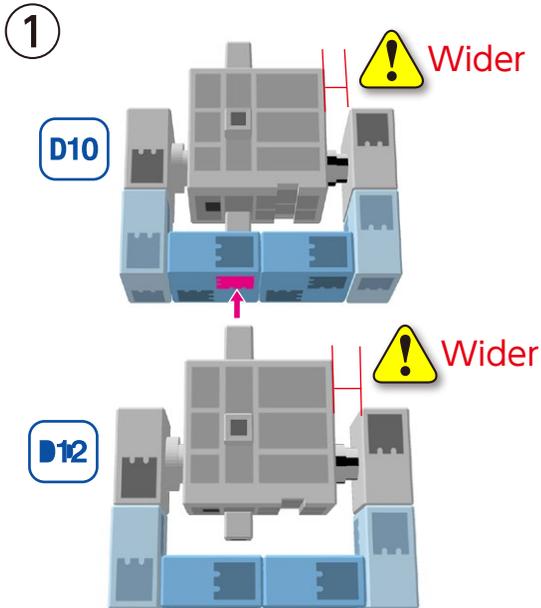
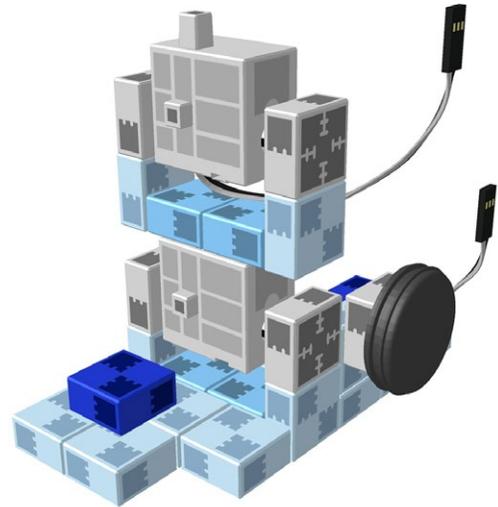
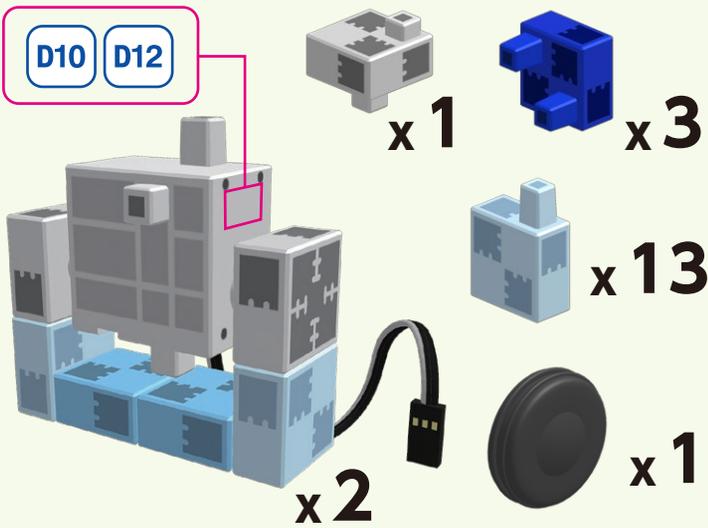


Completed Right Leg



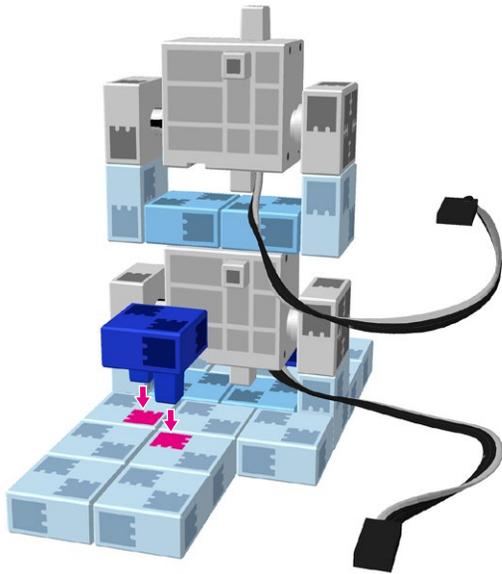
# Transforming Robot

## Assembling the Left Leg

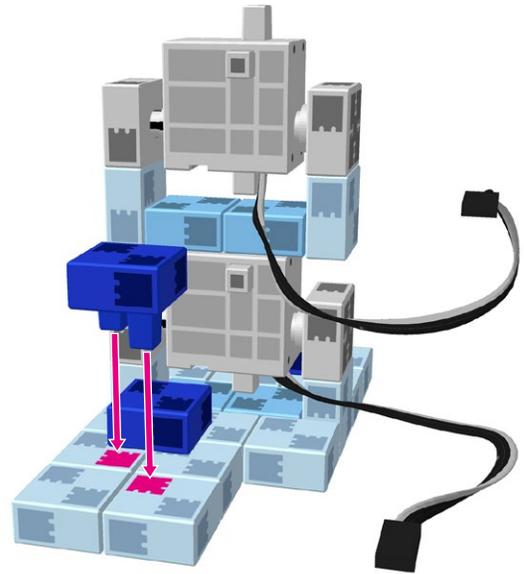


# Transforming Robot

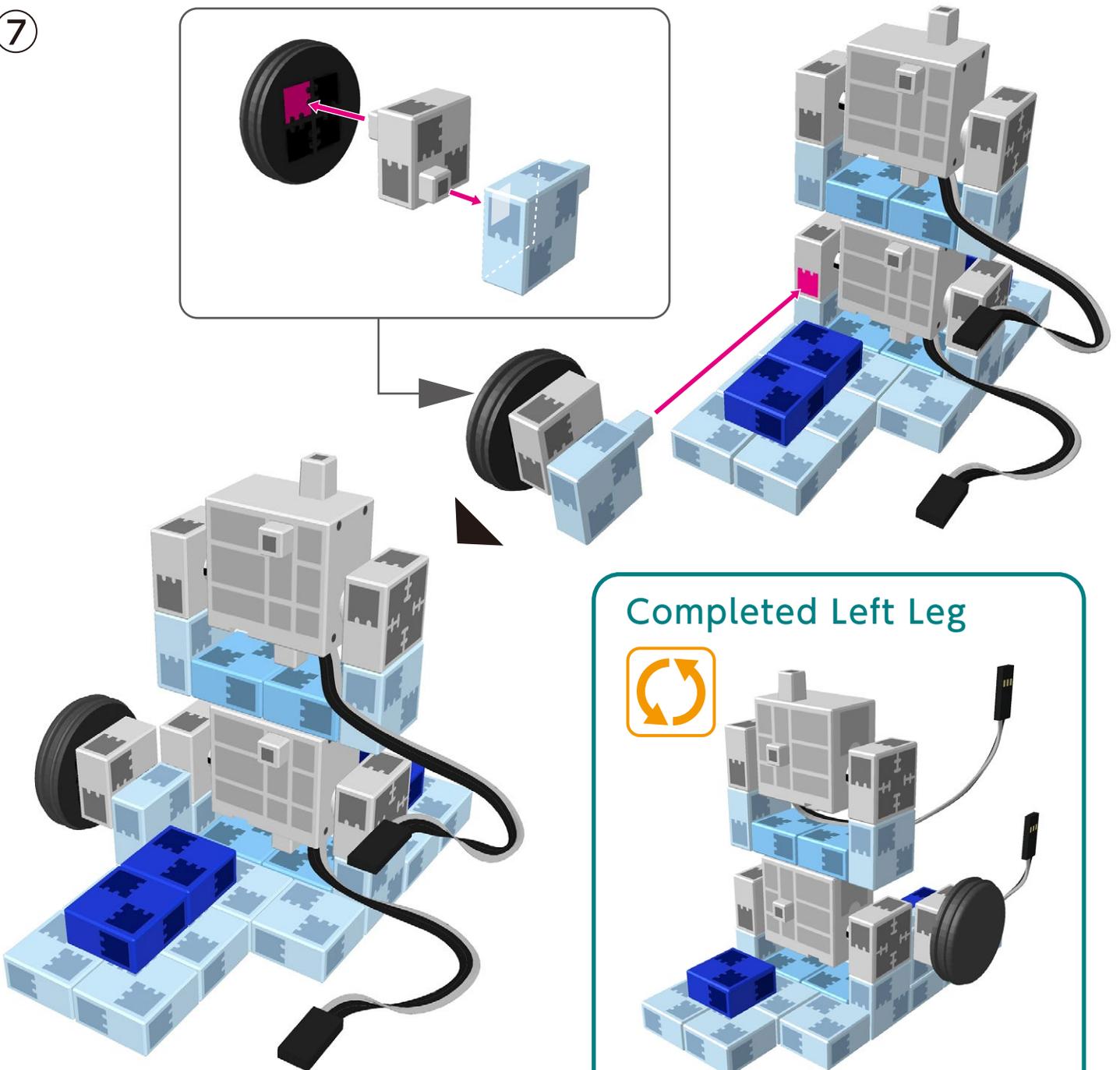
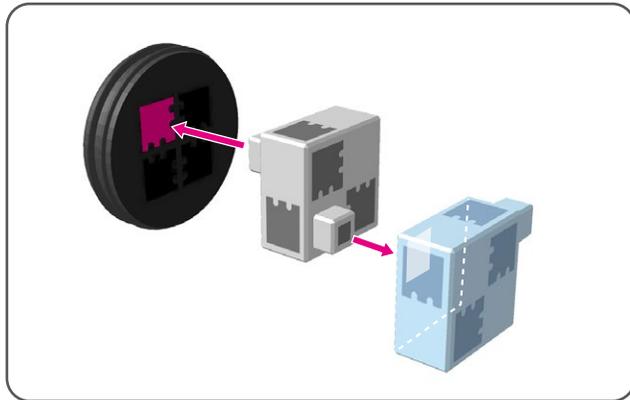
5



6

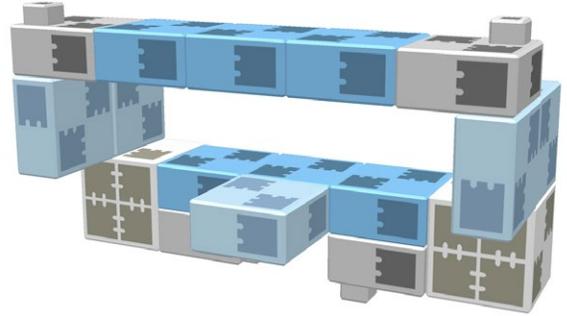
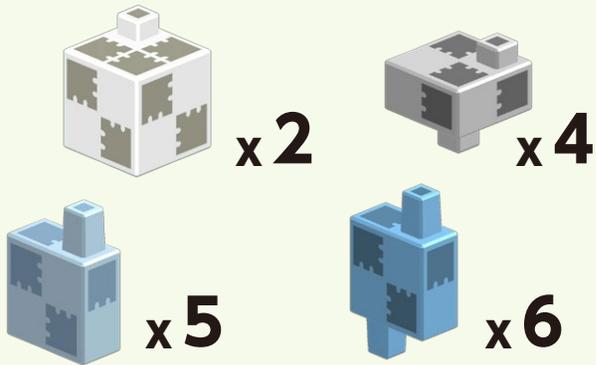


7

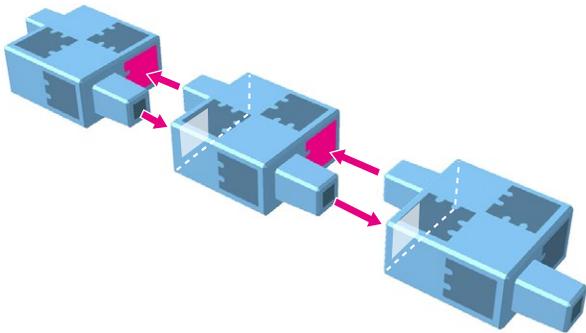


# Transforming Robot

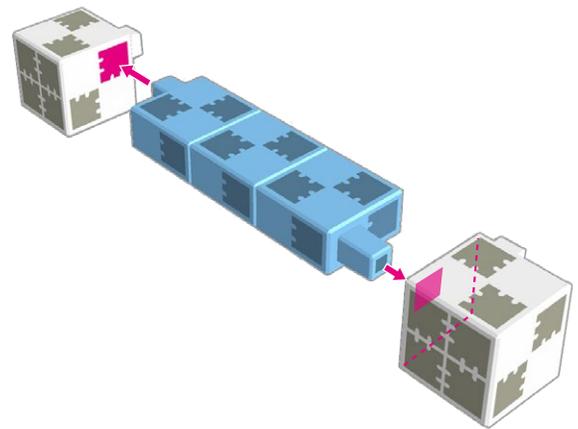
## Assembling Torso A



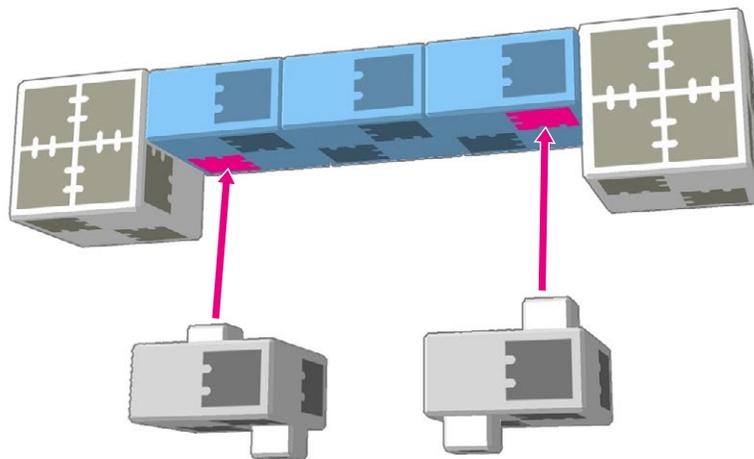
①



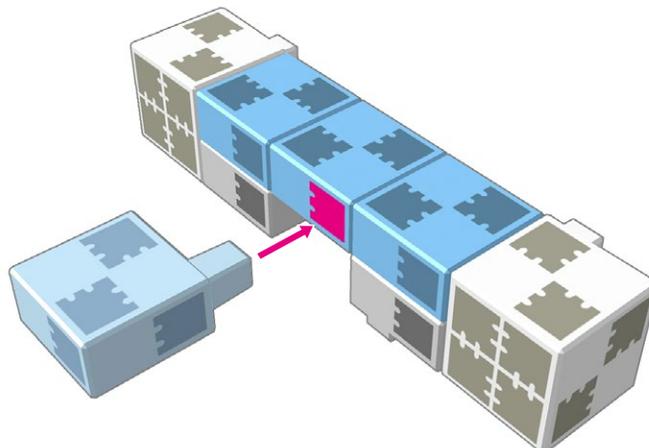
②



③

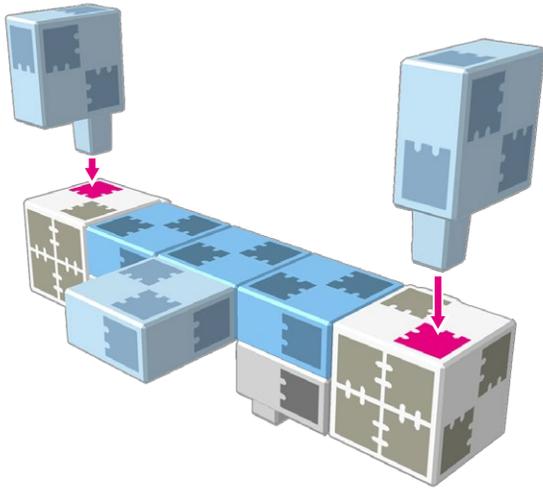


④

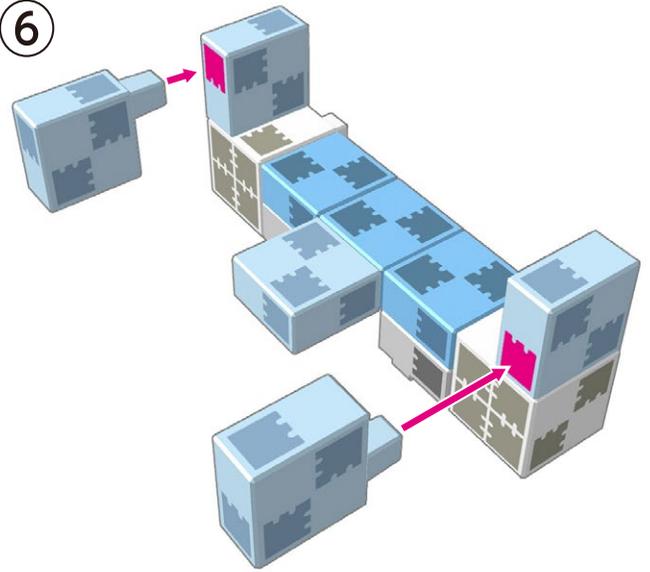


# Transforming Robot

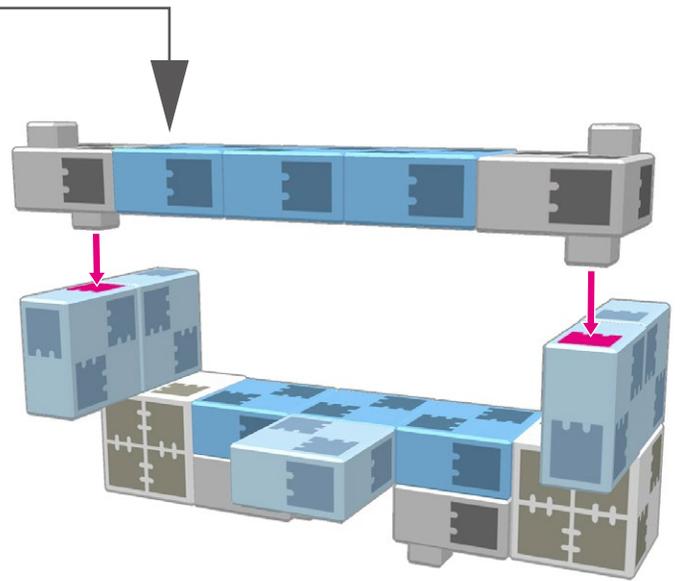
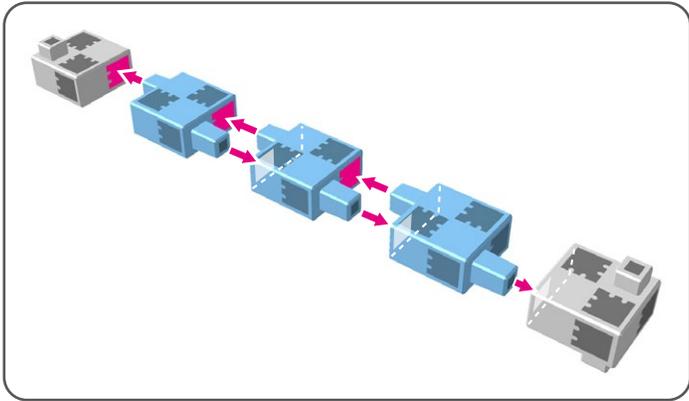
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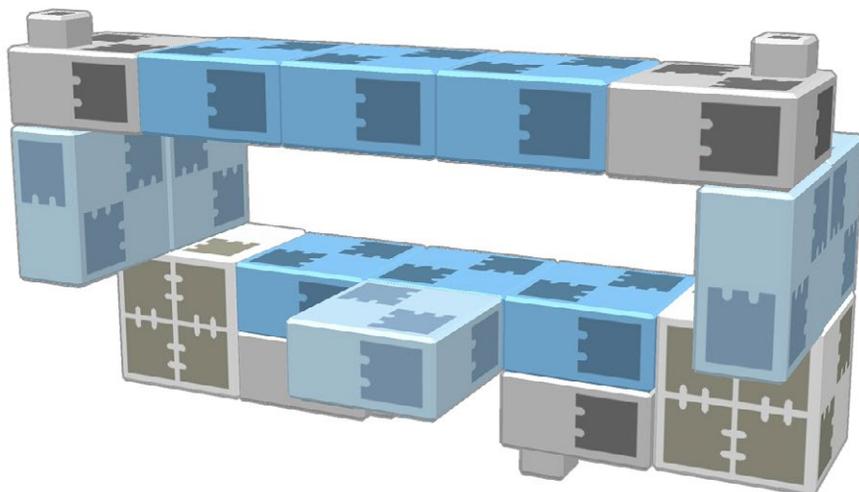
6



7

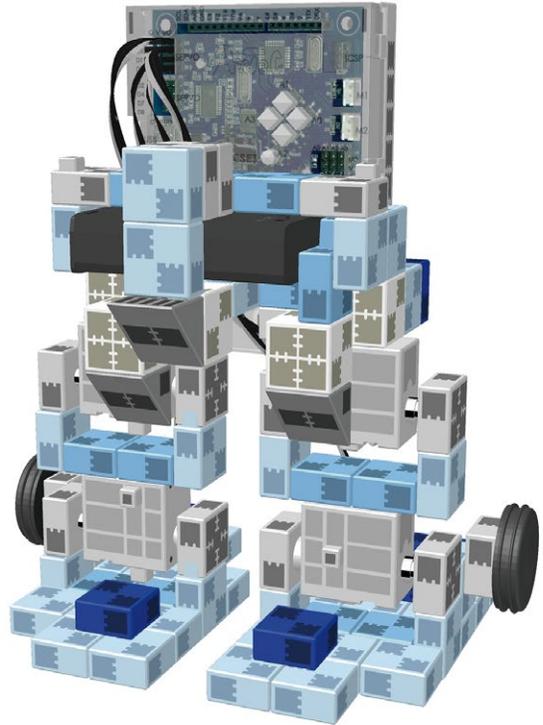
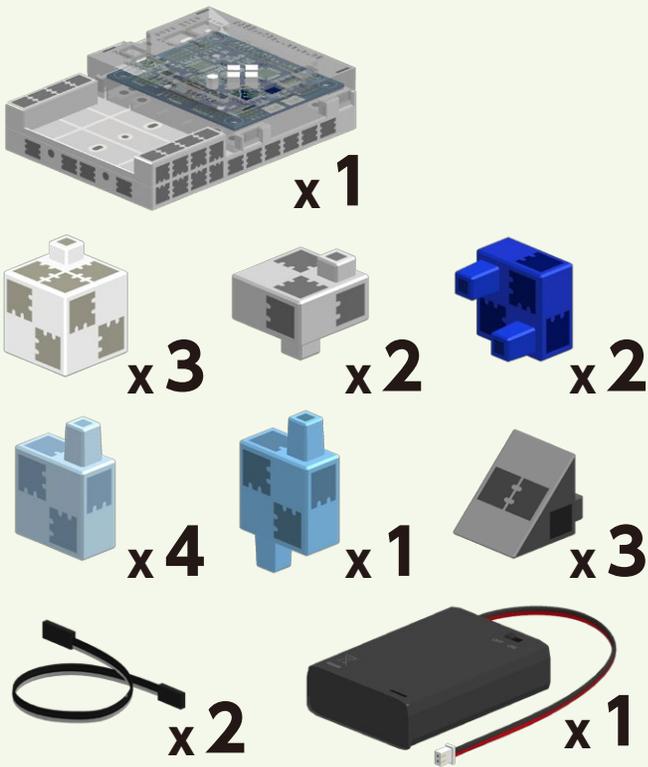


## Completed Torso A



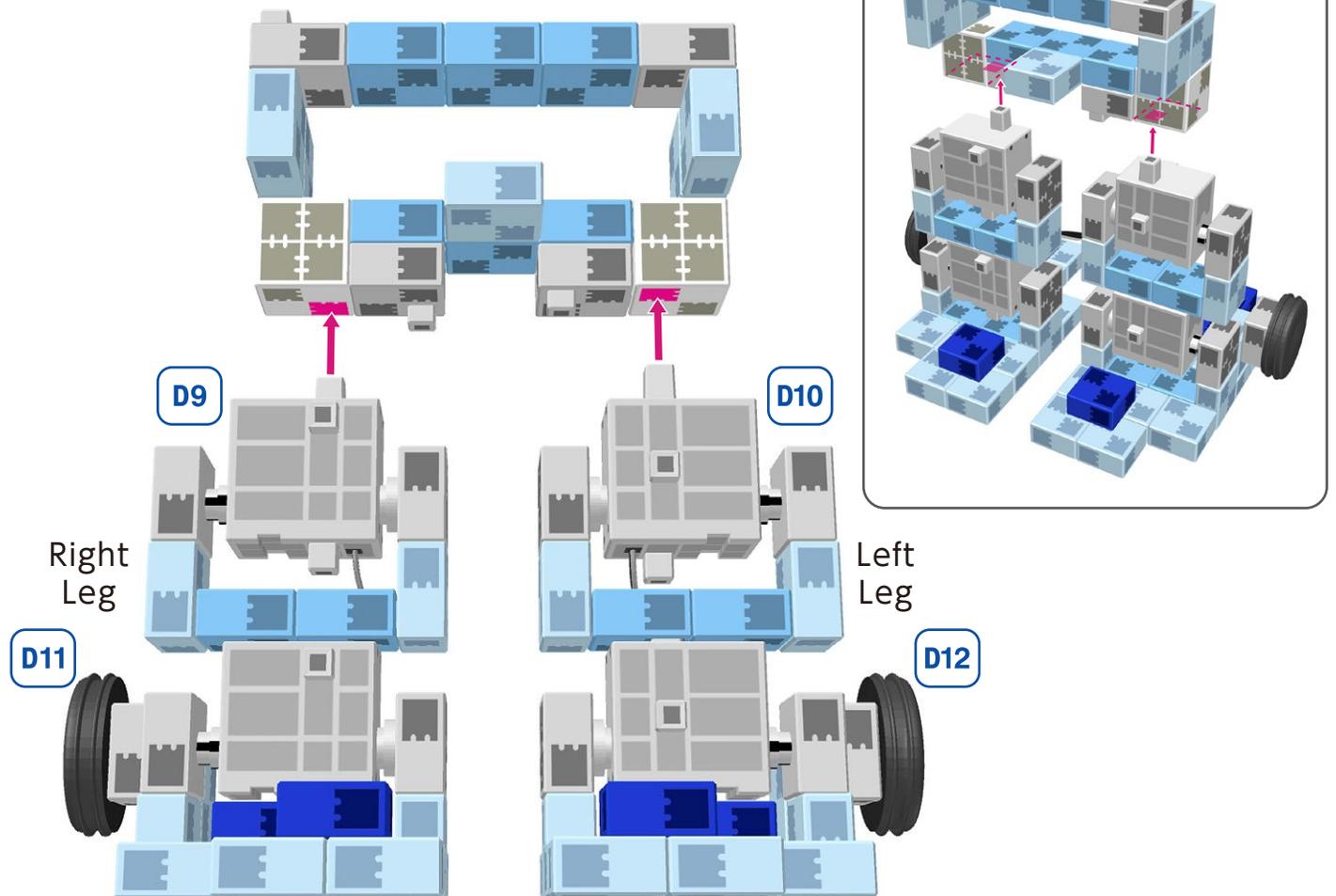
# Transforming Robot

## Assembling the Lower Half



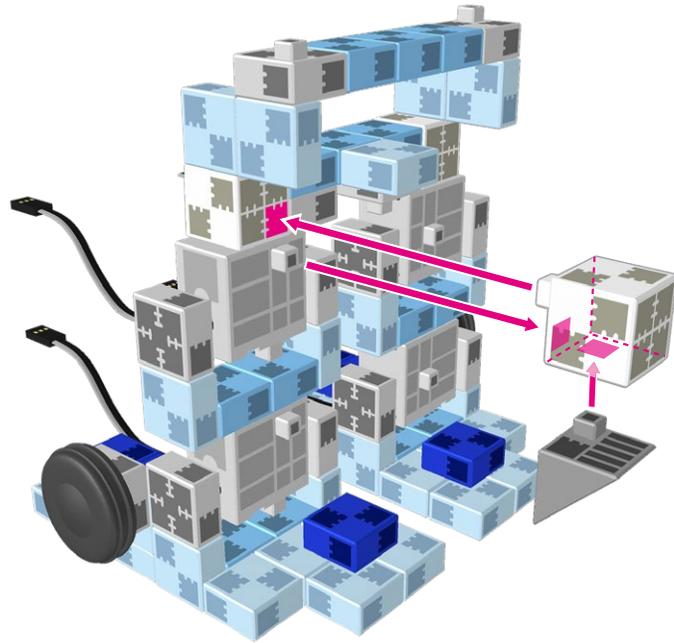
①

Torso A



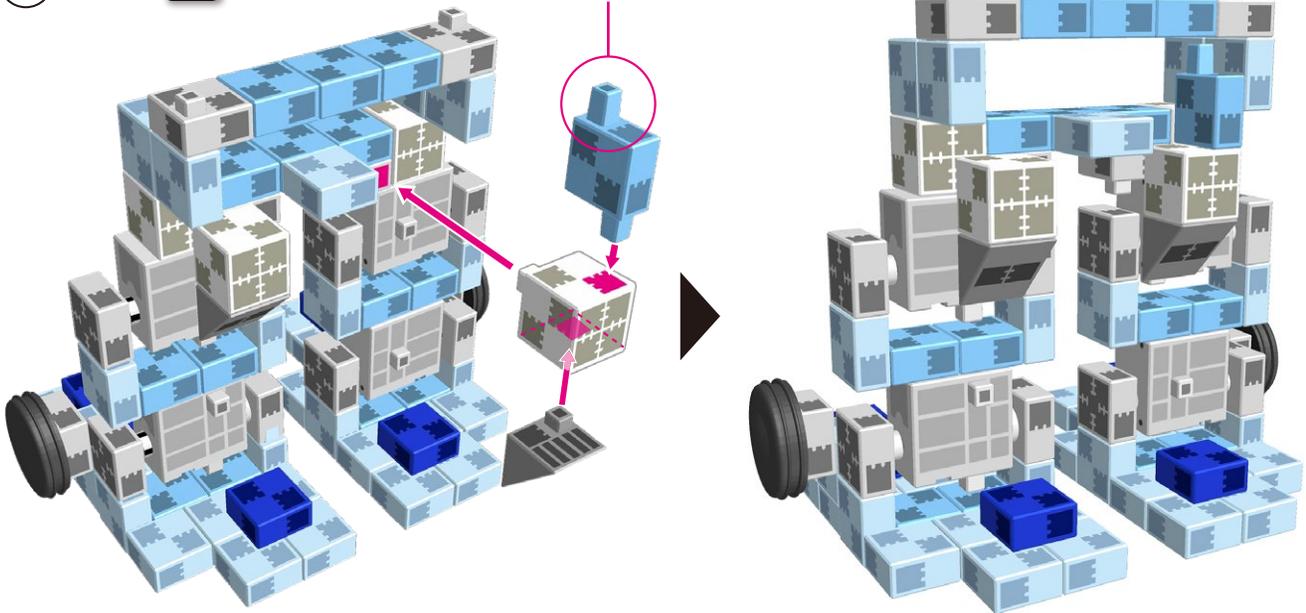
# Transforming Robot

②

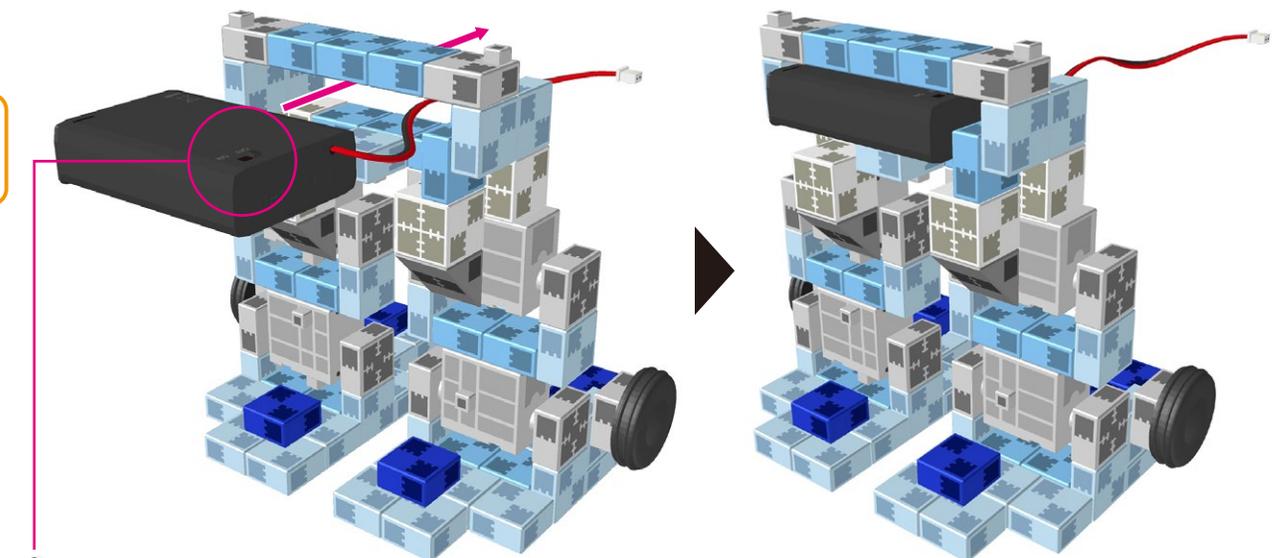


③

 Do not connect this stud to any blocks.



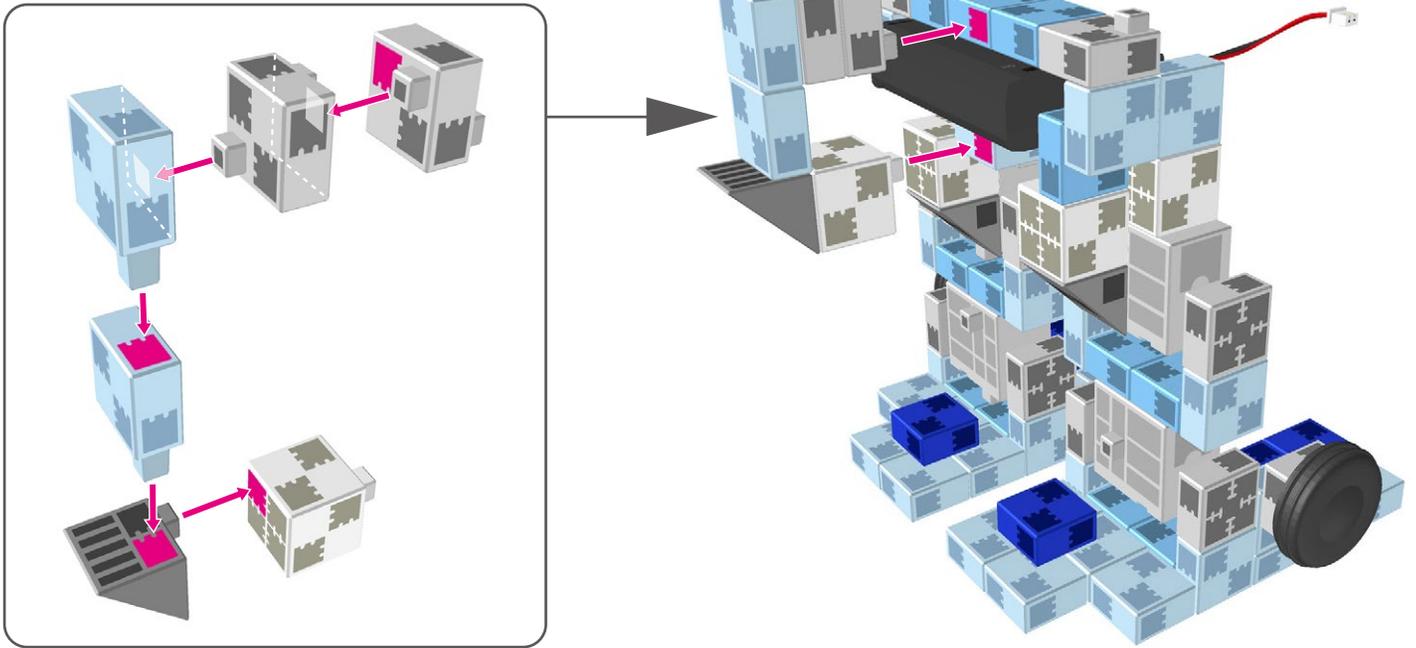
④



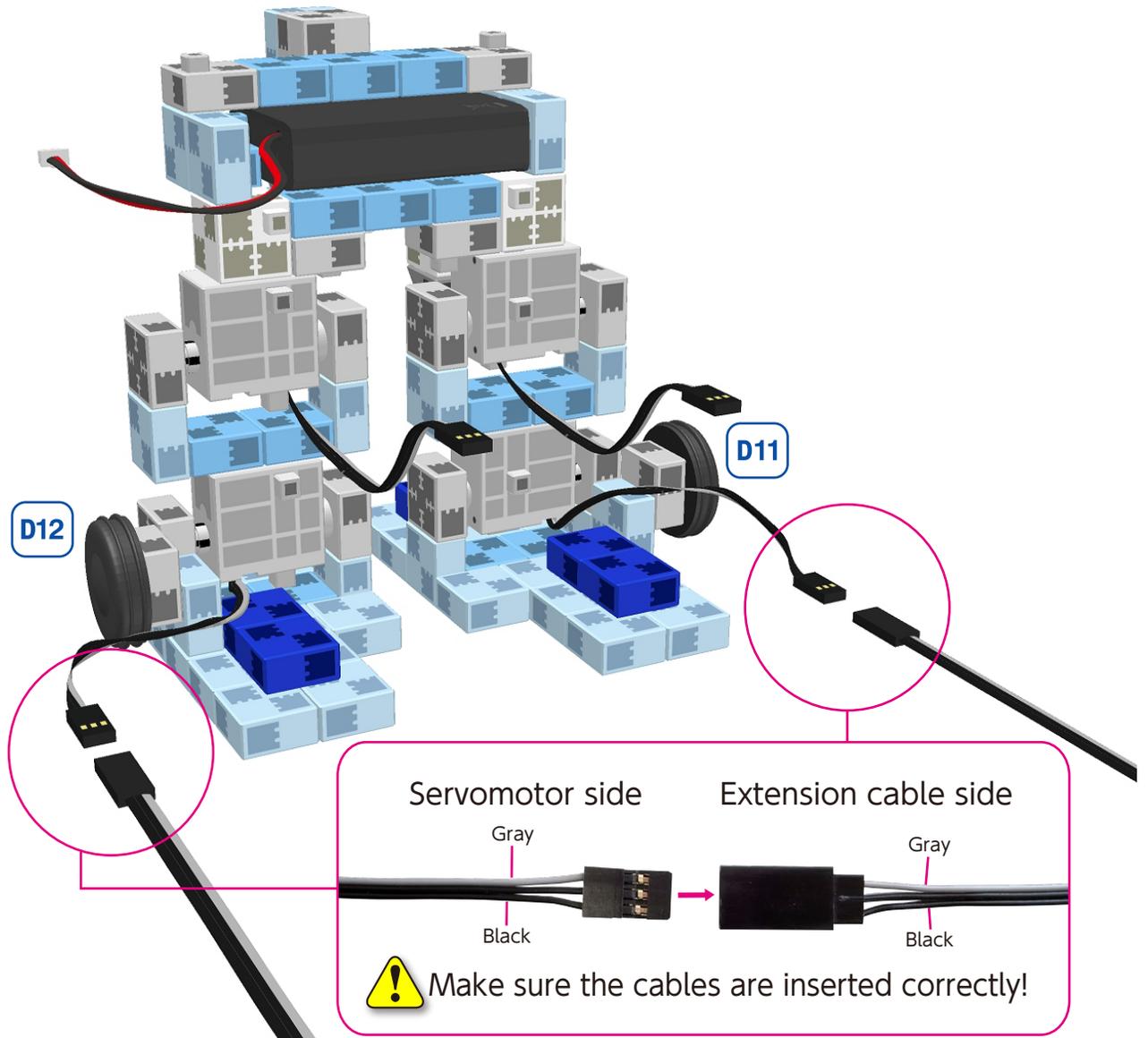
 You should see the battery box switch here.

# Transforming Robot

5

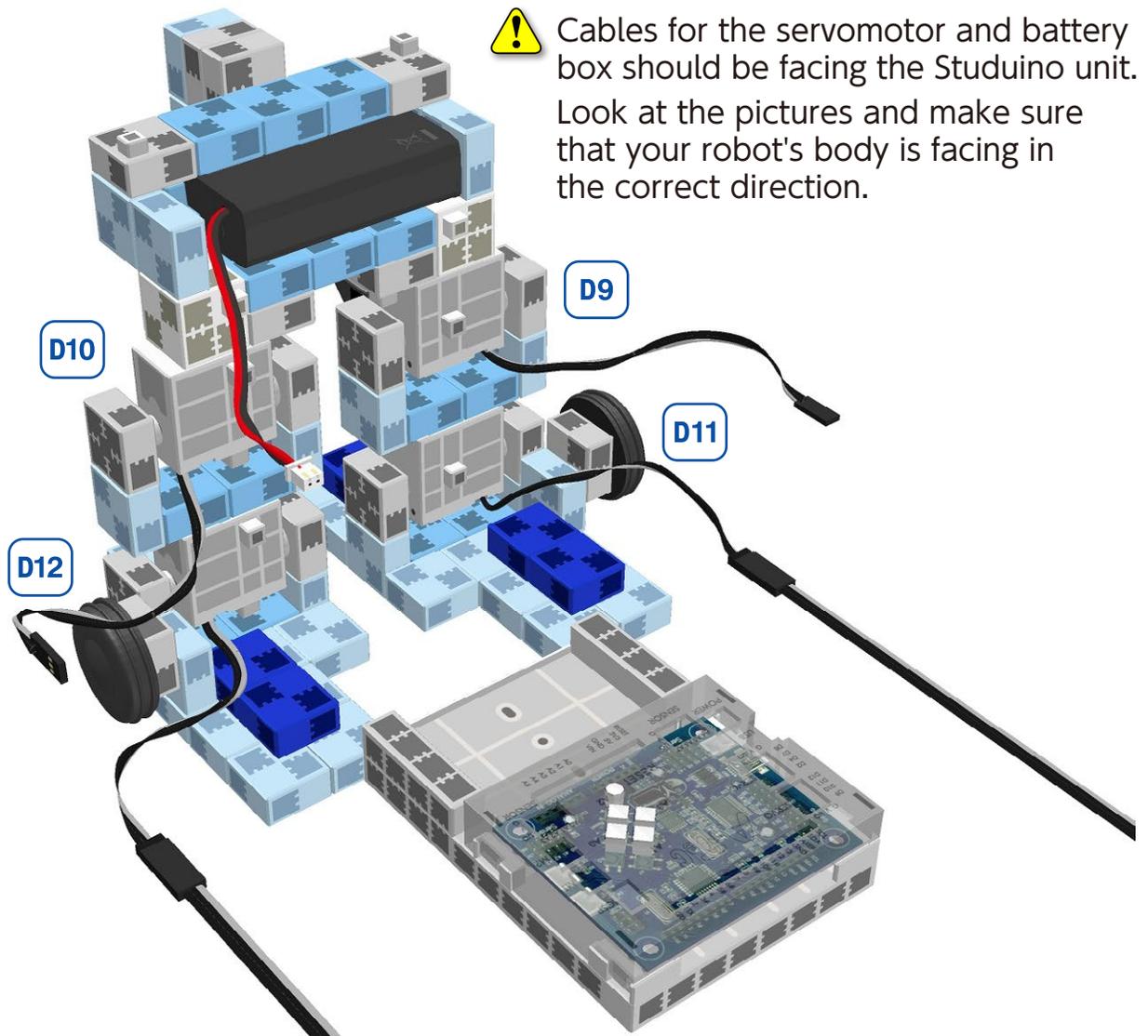


6 Connect the extension cables to points **D11** and **D12** as shown below.

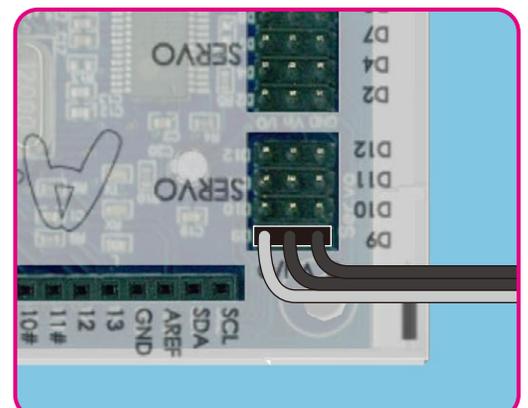
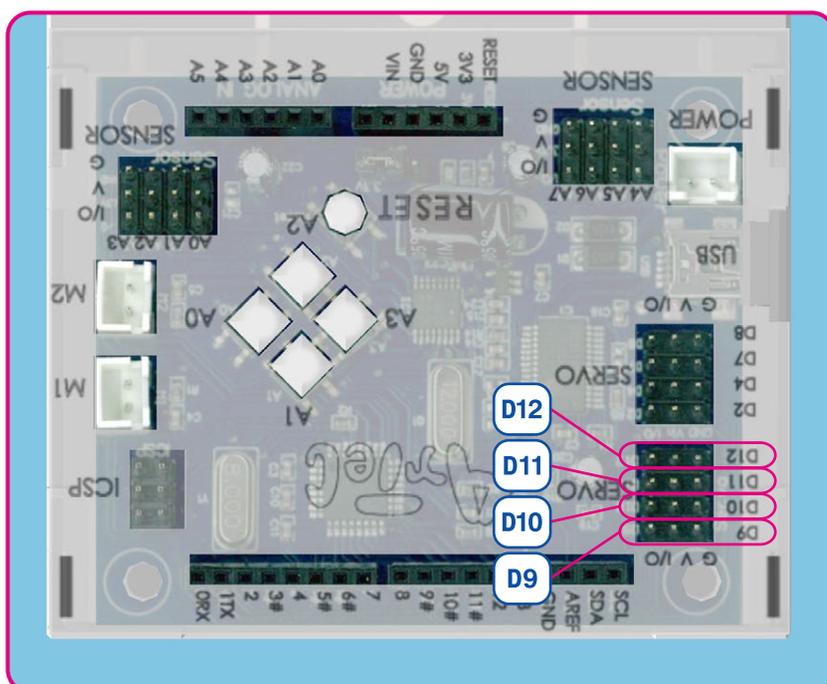


# Transforming Robot

- ⑦ Line up the robot and the Studuino unit as shown here.



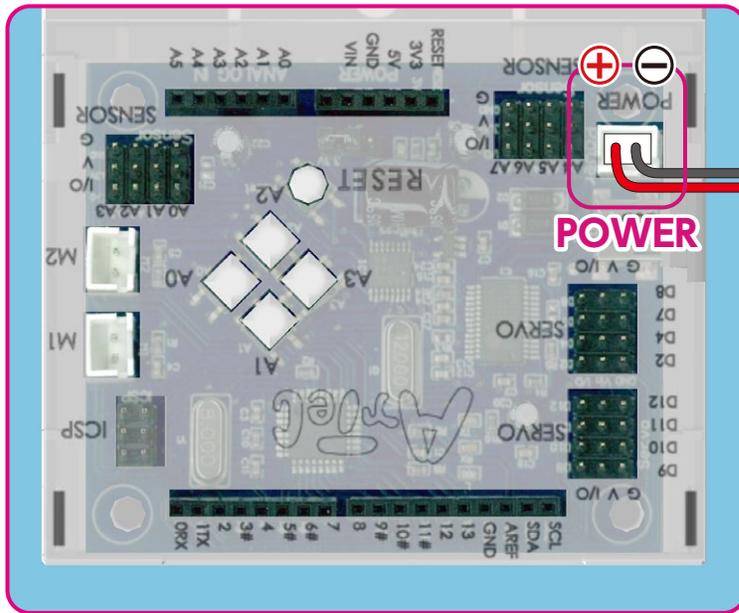
- ⑧ Connect the servomotor's four cables to their correct places on the Studuino unit.



- ⚠ Make sure the cables are inserted correctly!

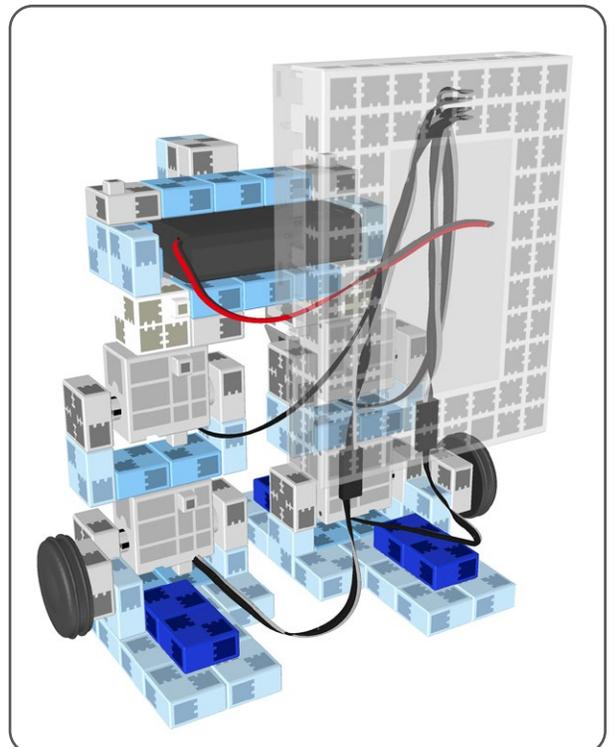
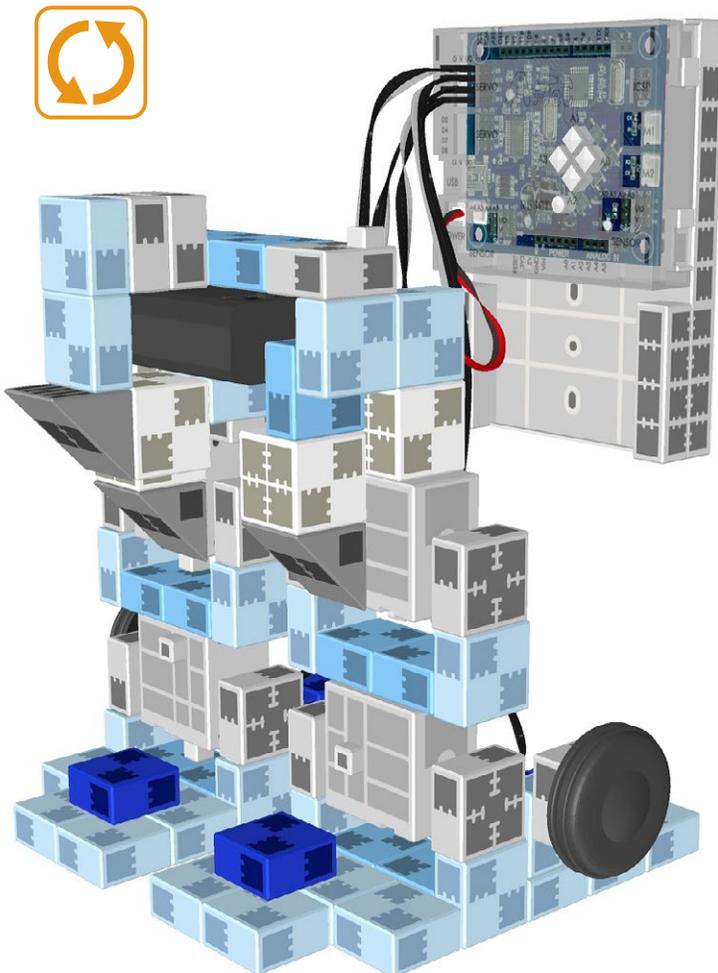
# Transforming Robot

- 9 Connect the cable from the battery box to the **POWER** pins.



⚠ Make sure the cables are inserted correctly!

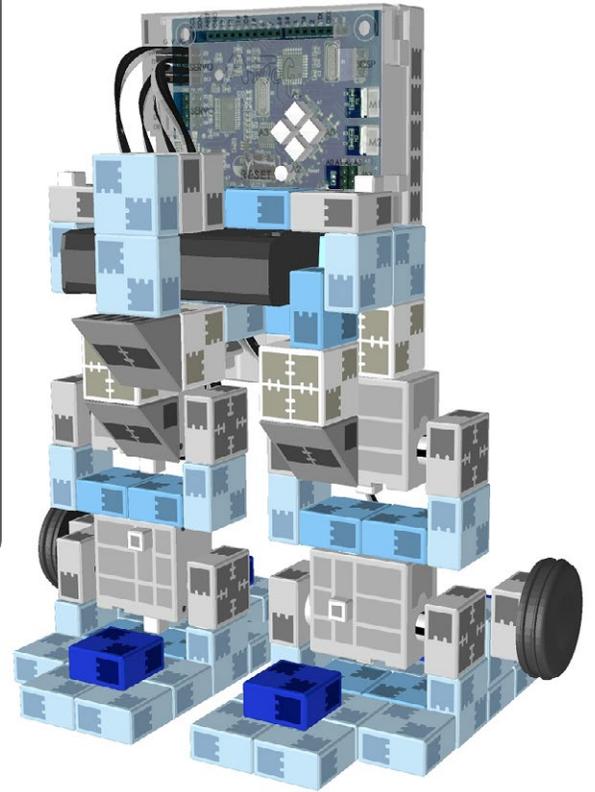
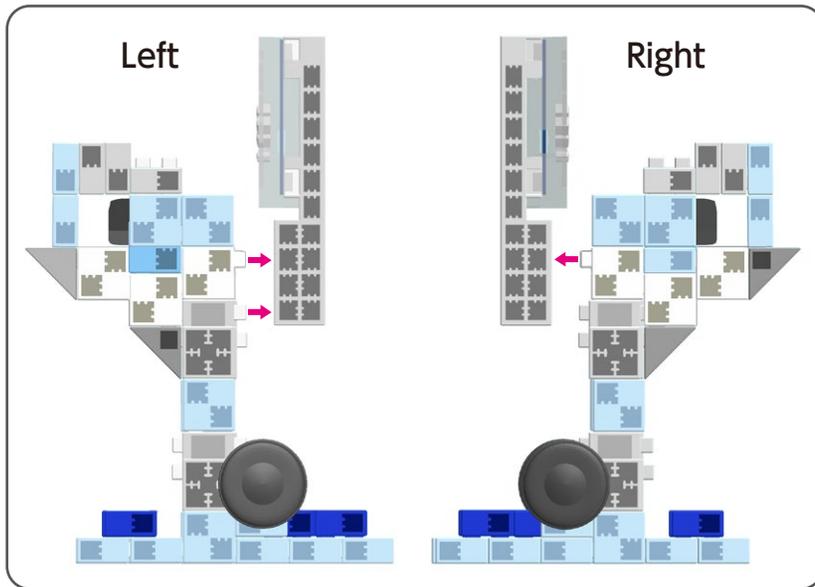
- 10 Lift the Studuino unit parallel to your robot's body.



⚠ The servomotor cables will run between the Studuino unit and your robot's body.

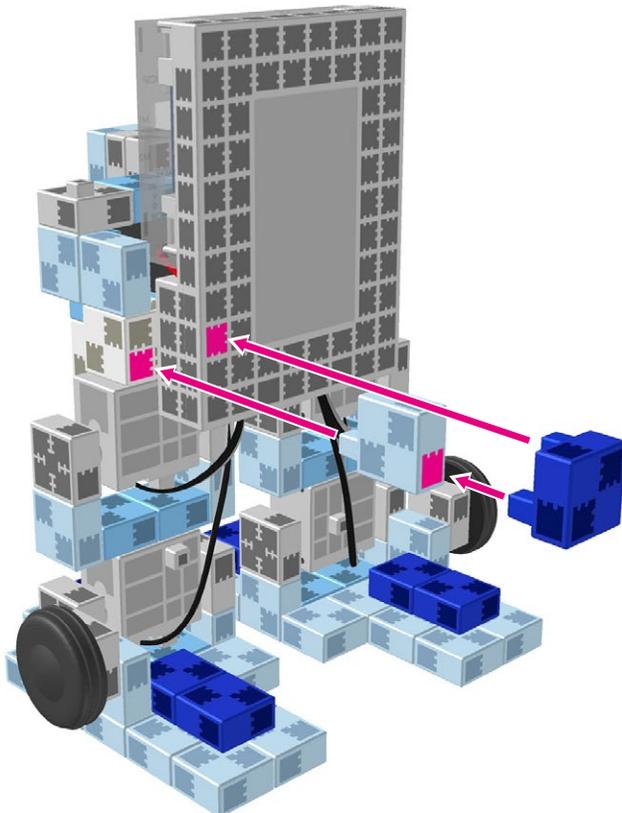
# Transforming Robot

- ⑪ Look at the picture below to see how you should connect your Studuino unit.

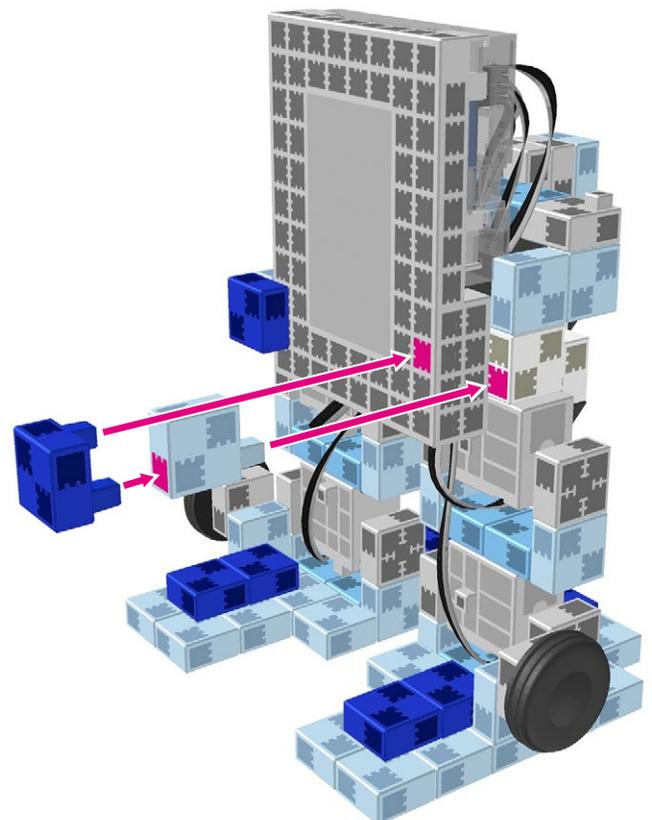


 Make sure not to get cables caught between blocks.

⑫

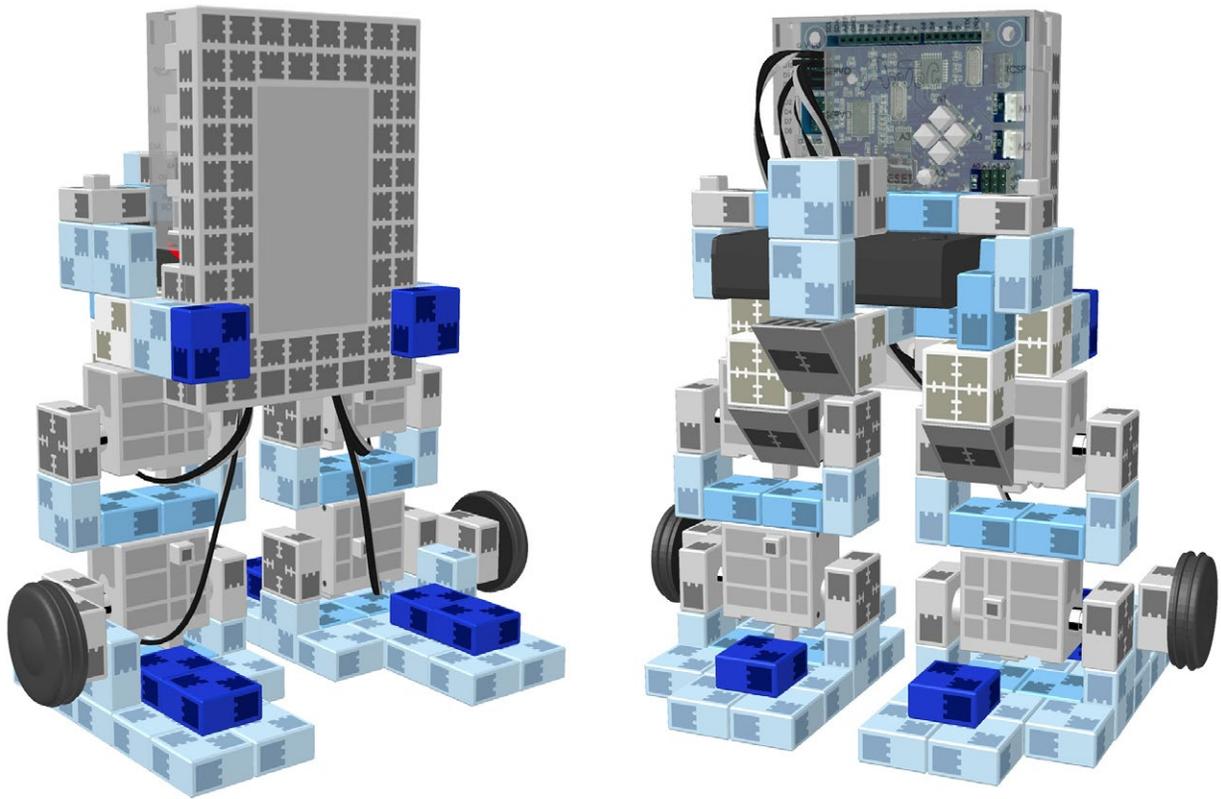


⑬

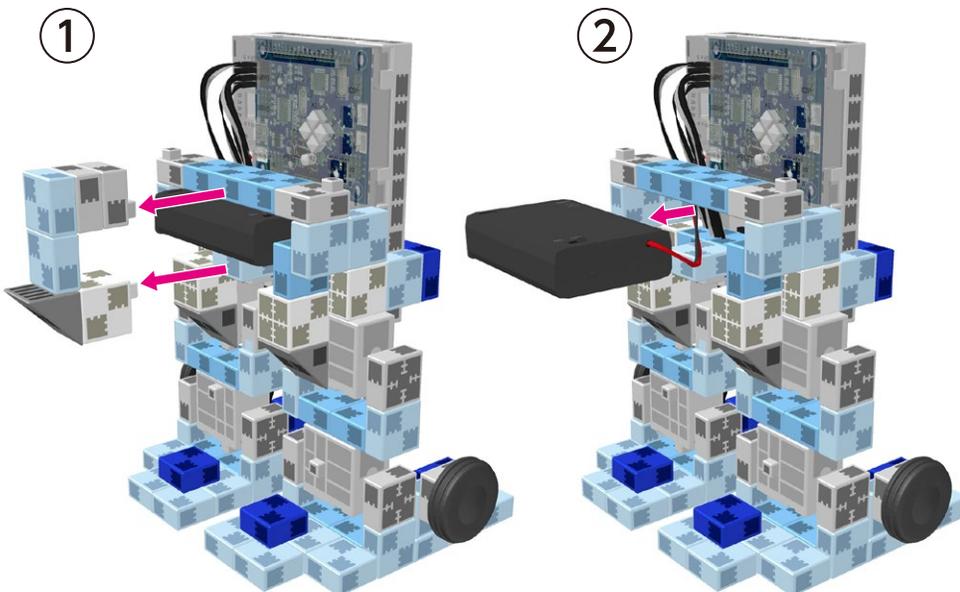


# Transforming Robot

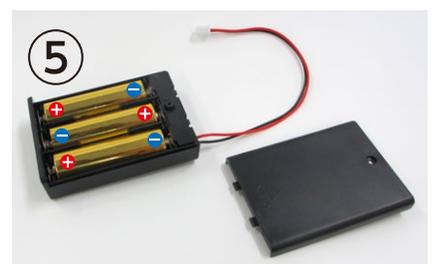
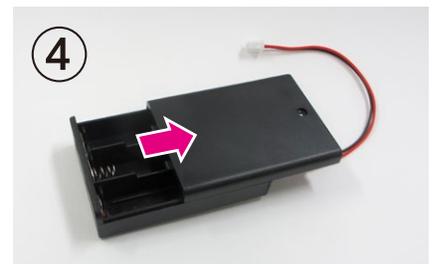
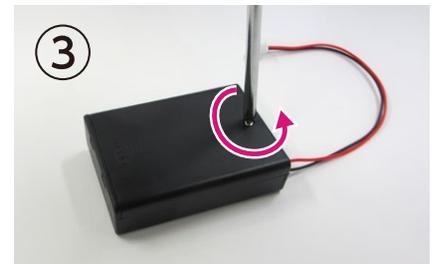
## Completed Lower Body



## Replacing the Batteries



Use a screwdriver (Phillips #1) to open.



 Insert batteries in the correct polarity.

Put the lid of the battery box back in place.

# Transforming Robot

## Making Your Robot Walk

Install the software from the URL below to setup the **Studuino Programming Environment**.

★ Proceed to Step 1 when software installation is complete.

<http://www.artec-kk.co.jp/studuino/>

- ① Connect the USB cable to the PC and the Studuino unit.  
Refer to **1.3. About Studuino** in the **Studuino Programming Environment Manual** for more details.
- ② Download the program file **TransformingRobot\_1.ipd** from the URL below in the **ArtecRobo** section.

<http://www.artec-kk.co.jp/artecrobo/>

- ③ Open the downloaded file.

- ④ Transfer the program to the Studuino unit by clicking the Transfer button .



- ⑤ Remove the USB cable from the Studuino unit.

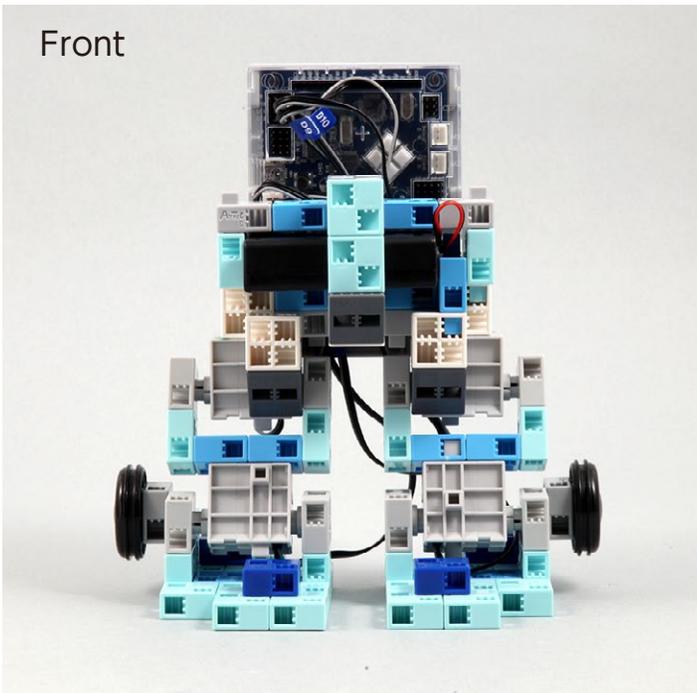
# Transforming Robot

Turn the switch of the battery box on and your robot will start walking.

**!** Immediately turn the switch to off if your robot does not begin walking as shown in the picture below.  
Not doing so may damage the servomotor.

**!** If your robot does not move, the servomotor may be in the wrong position or the blocks may be improperly connected.  
Re-read the Assembly Instructions to make sure that your robot has been assembled correctly.

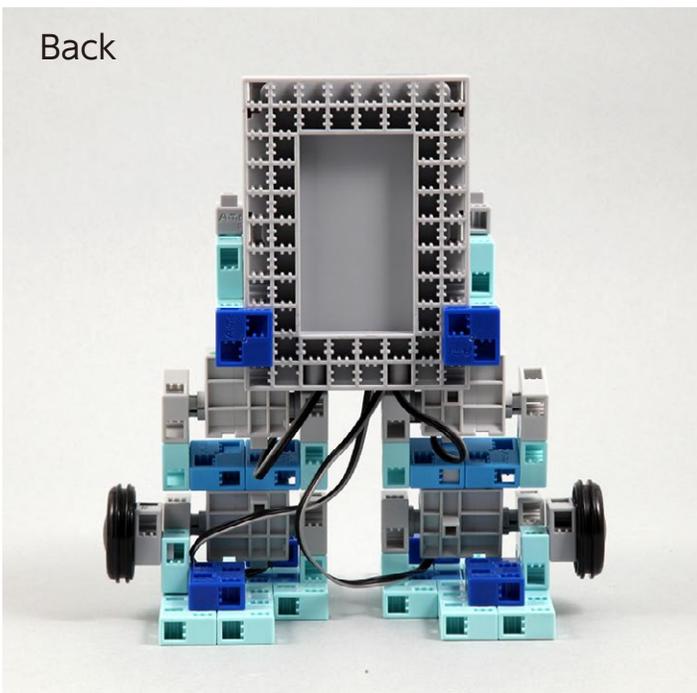
Front



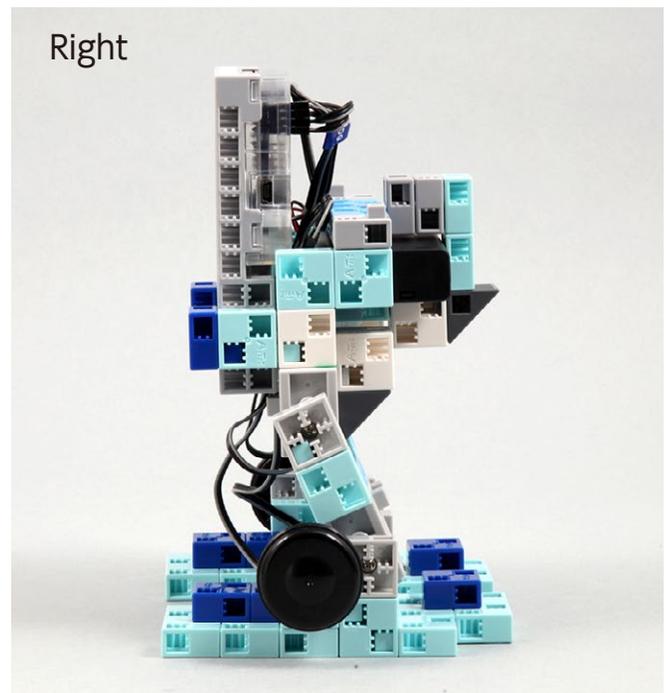
Left



Back

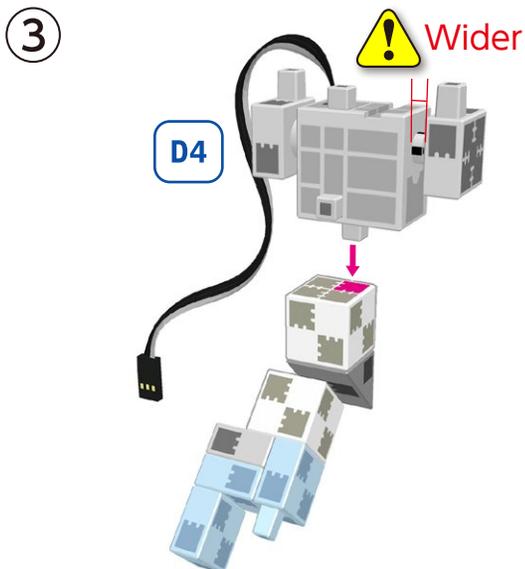
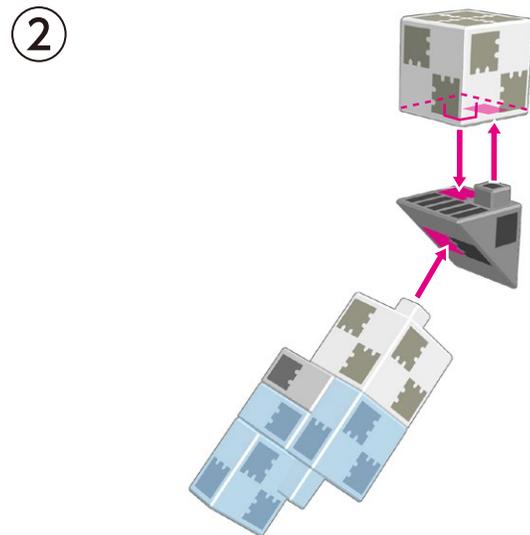
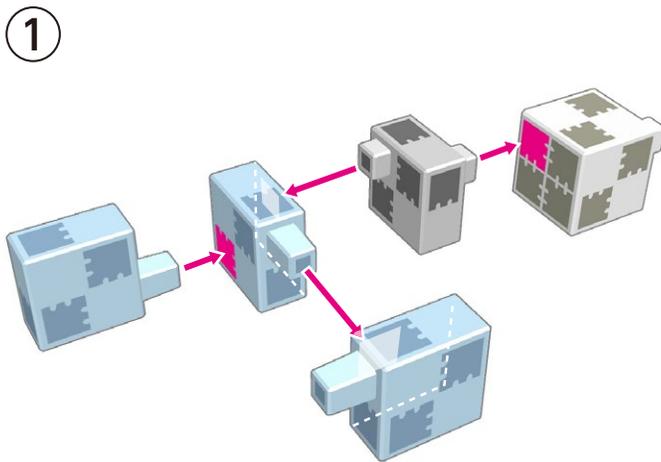
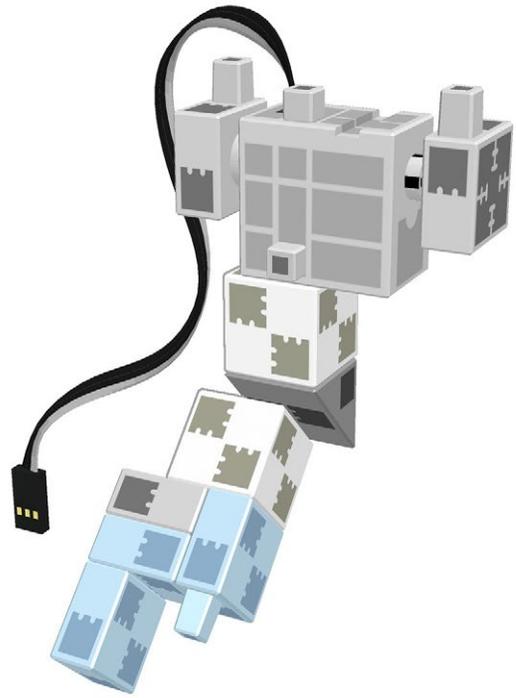
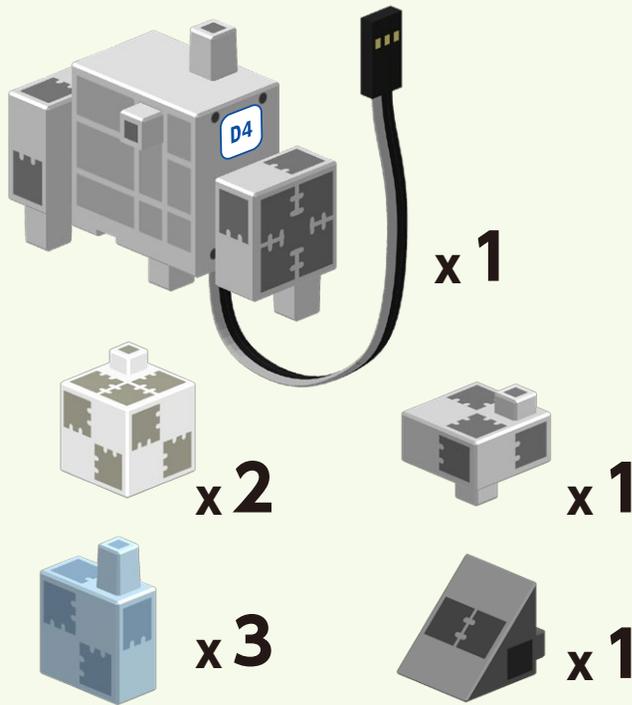


Right

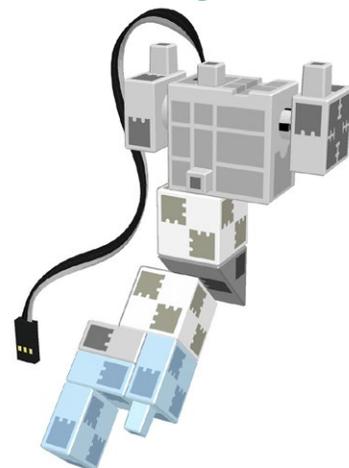


# Transforming Robot

## Assembling the Right Arm

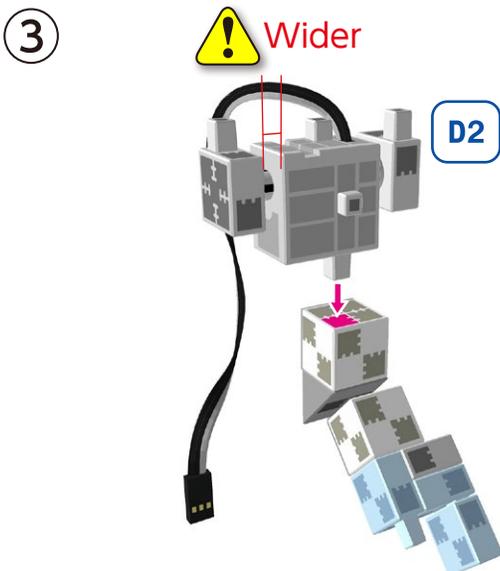
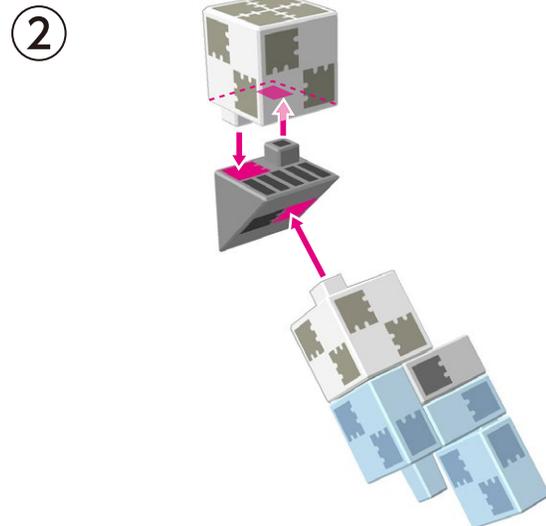
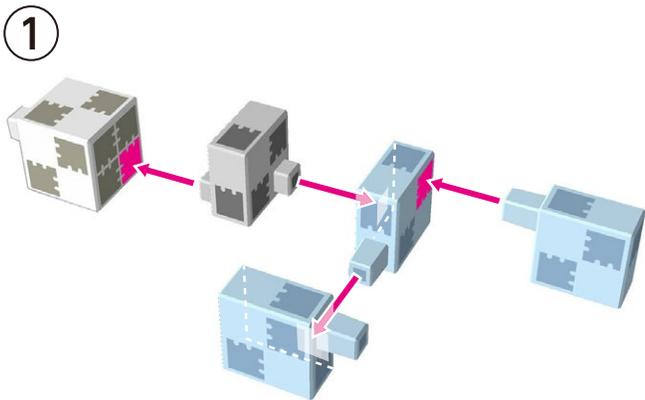
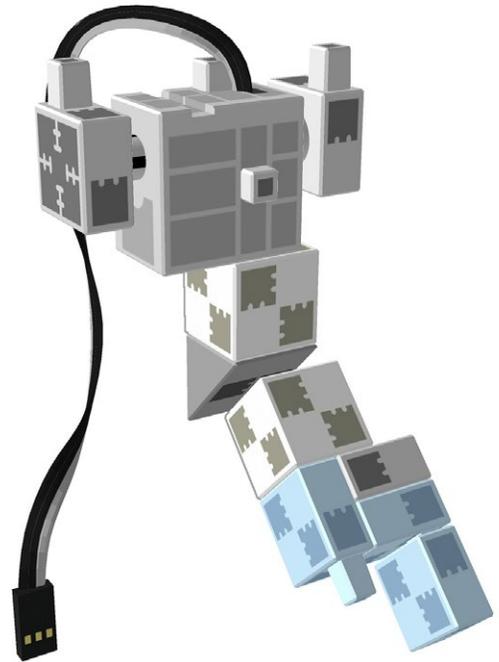
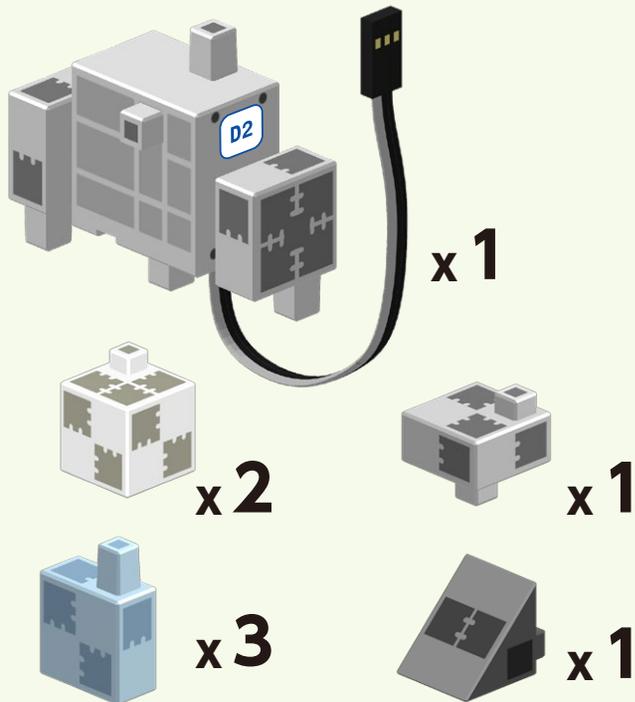


### Completed Right Arm

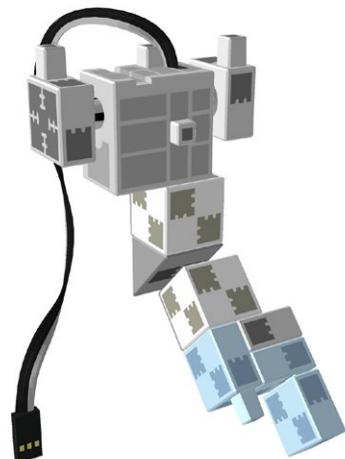


# Transforming Robot

## Assembling the Left Arm

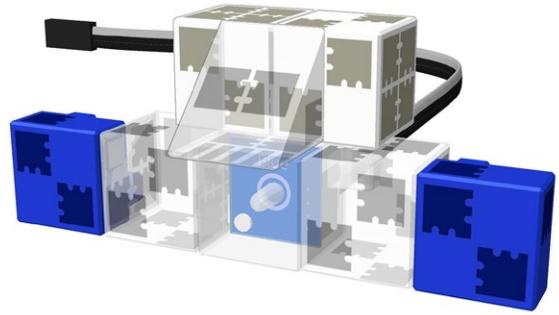
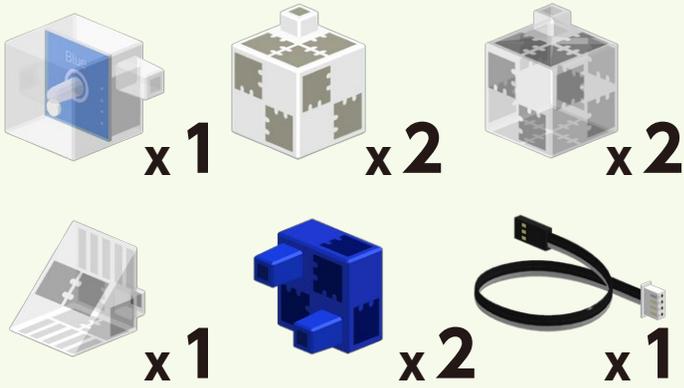


### Completed Left Arm

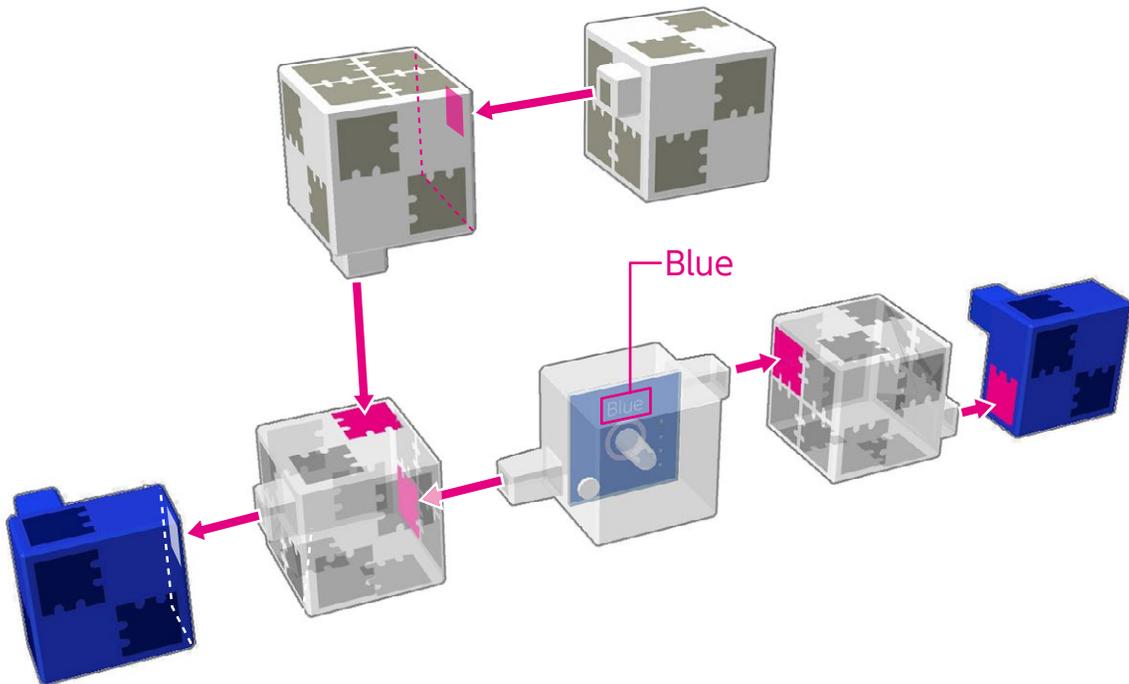


# Transforming Robot

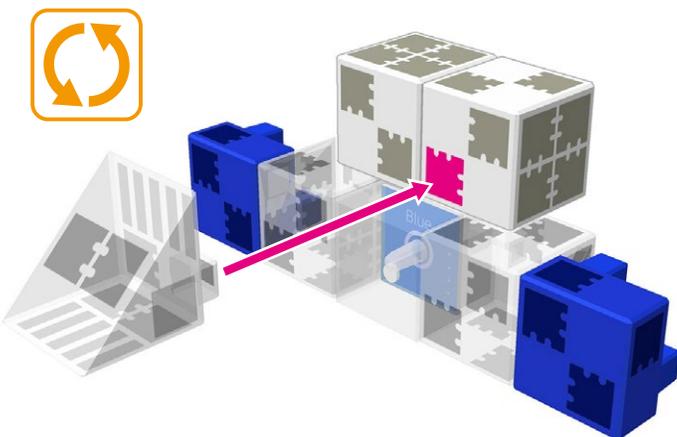
## Assembling the Head



①

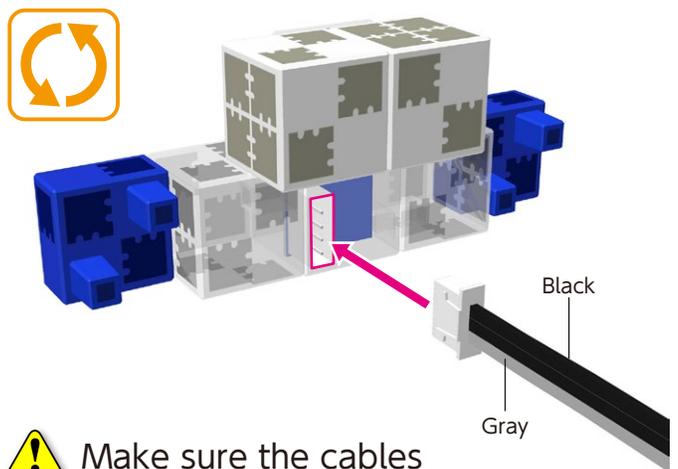


②



③

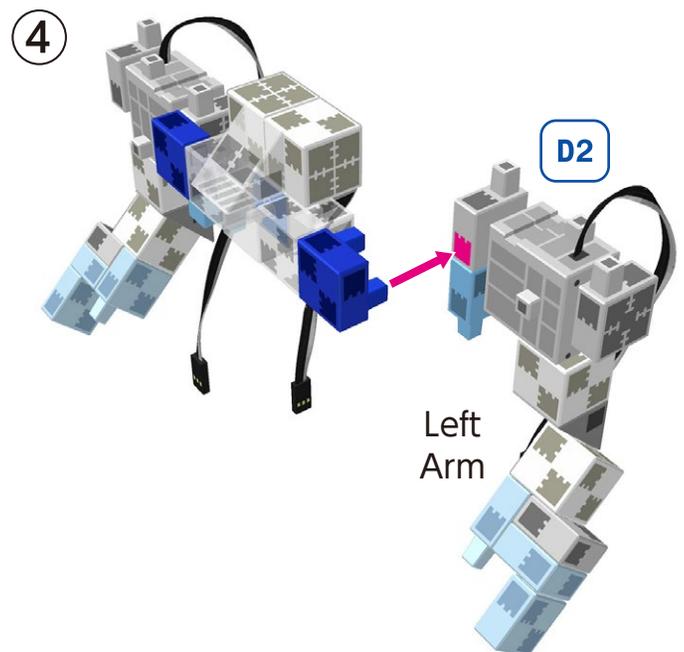
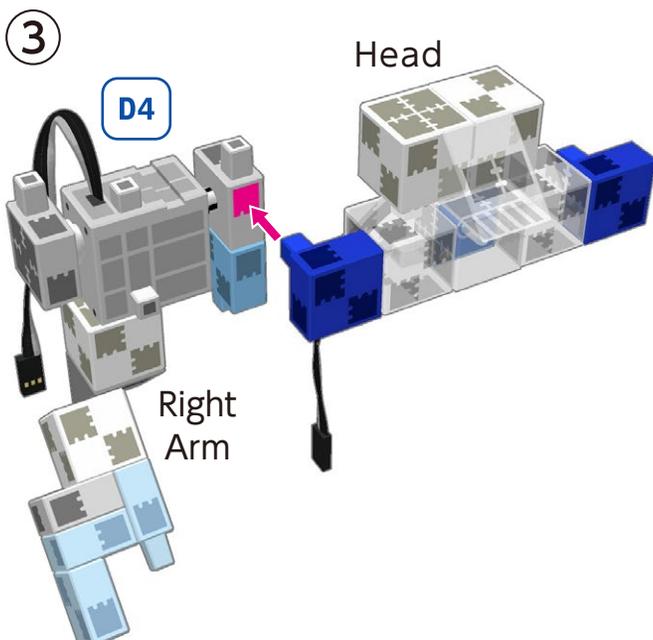
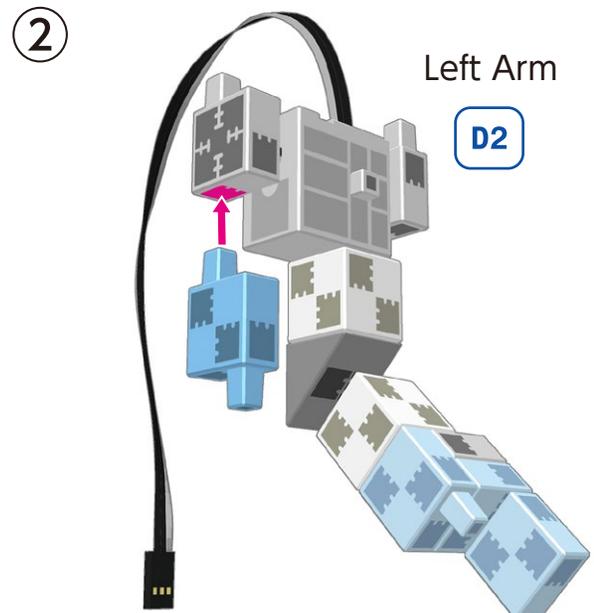
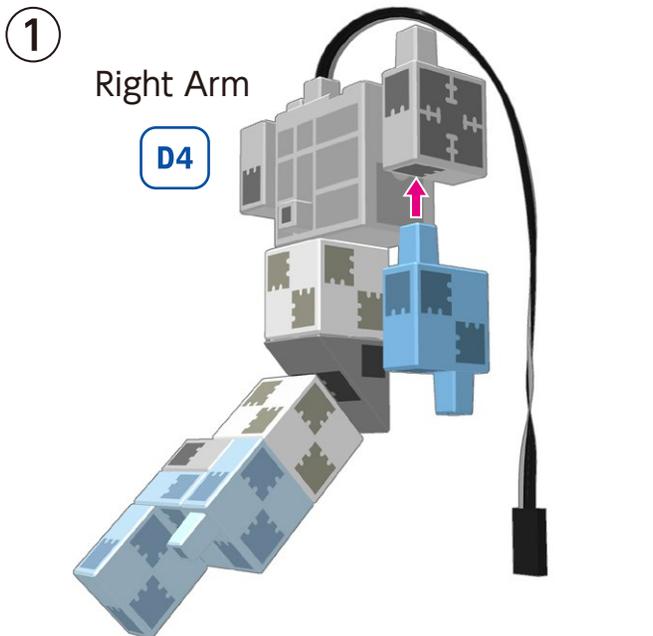
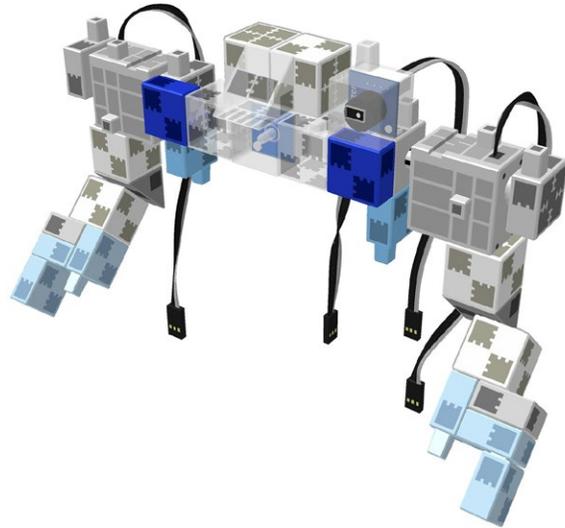
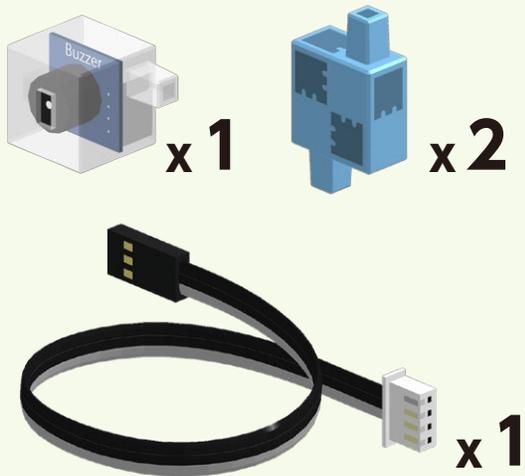
Connect the sensor cable to the LED.



**!** Make sure the cables are inserted correctly!

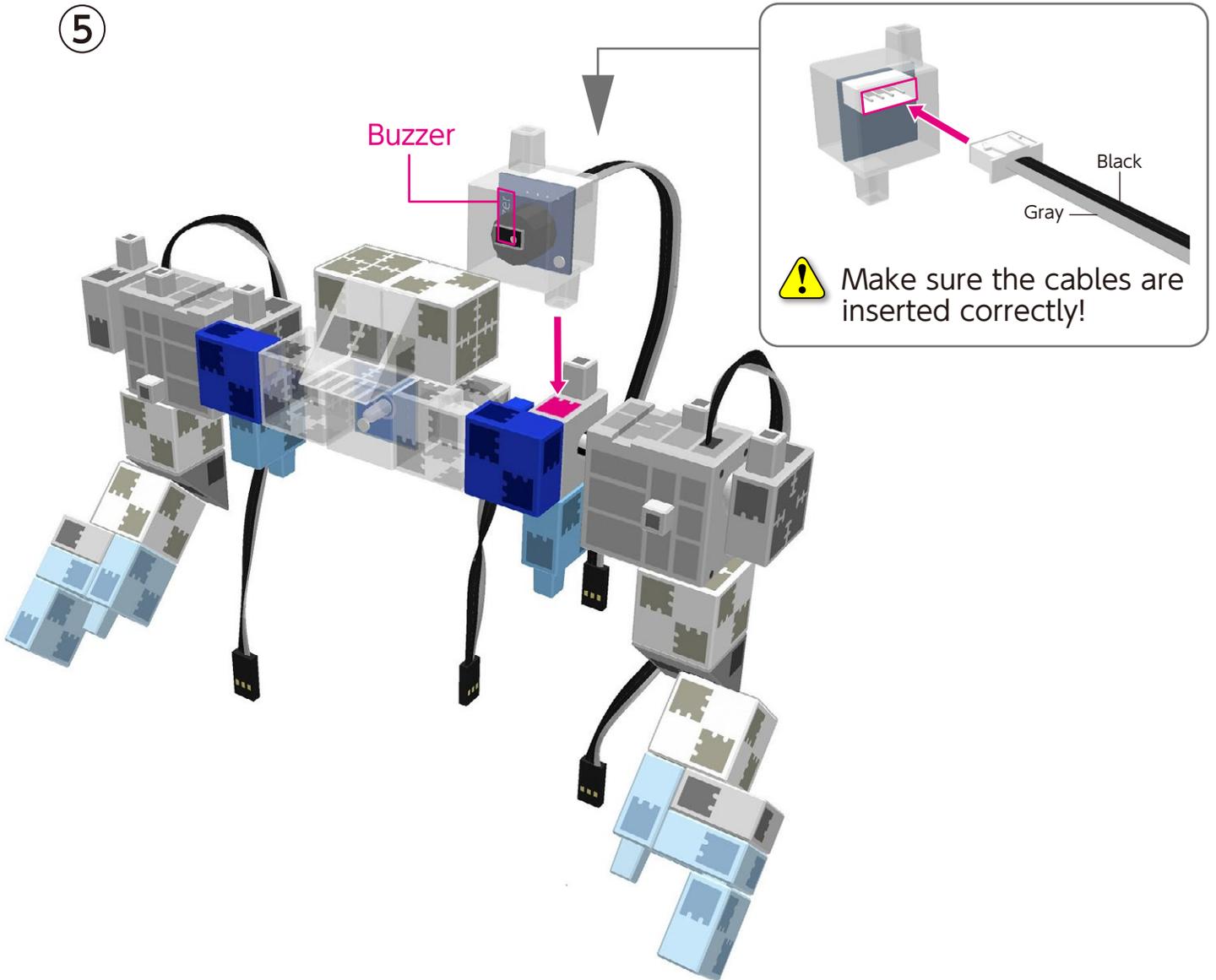
# Transforming Robot

## Assembling the Upper Half

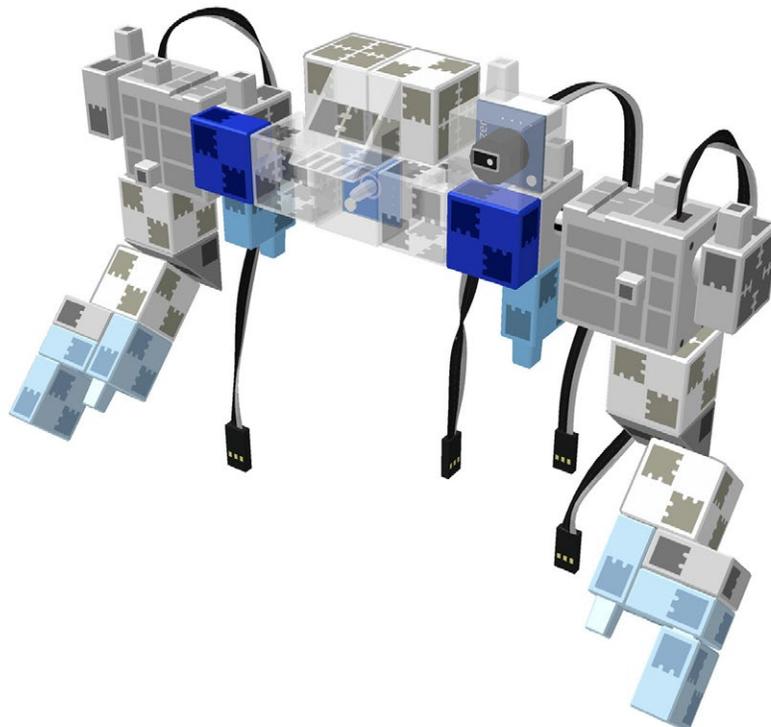


# Transforming Robot

5

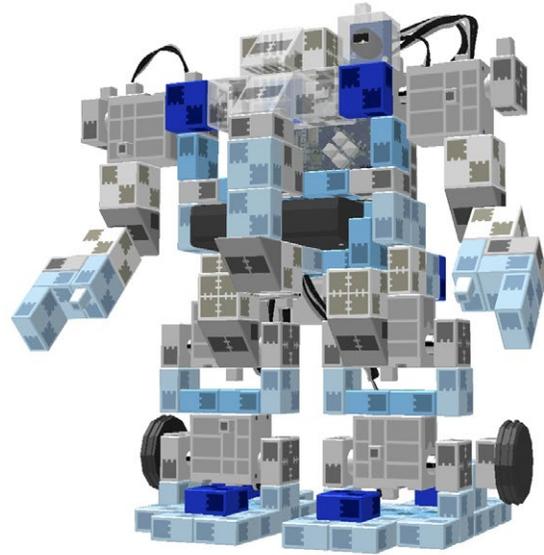
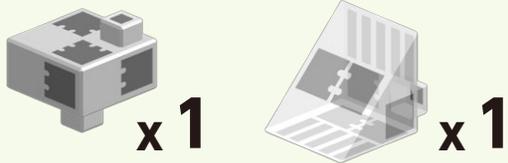


## Completed Upped Half

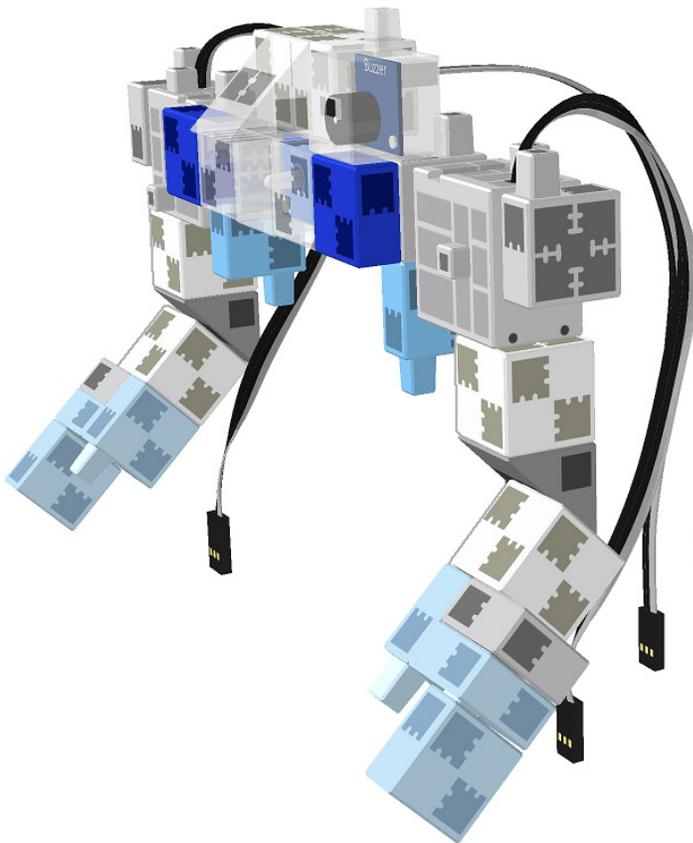


# Transforming Robot

## Assembling Your Walking Robot

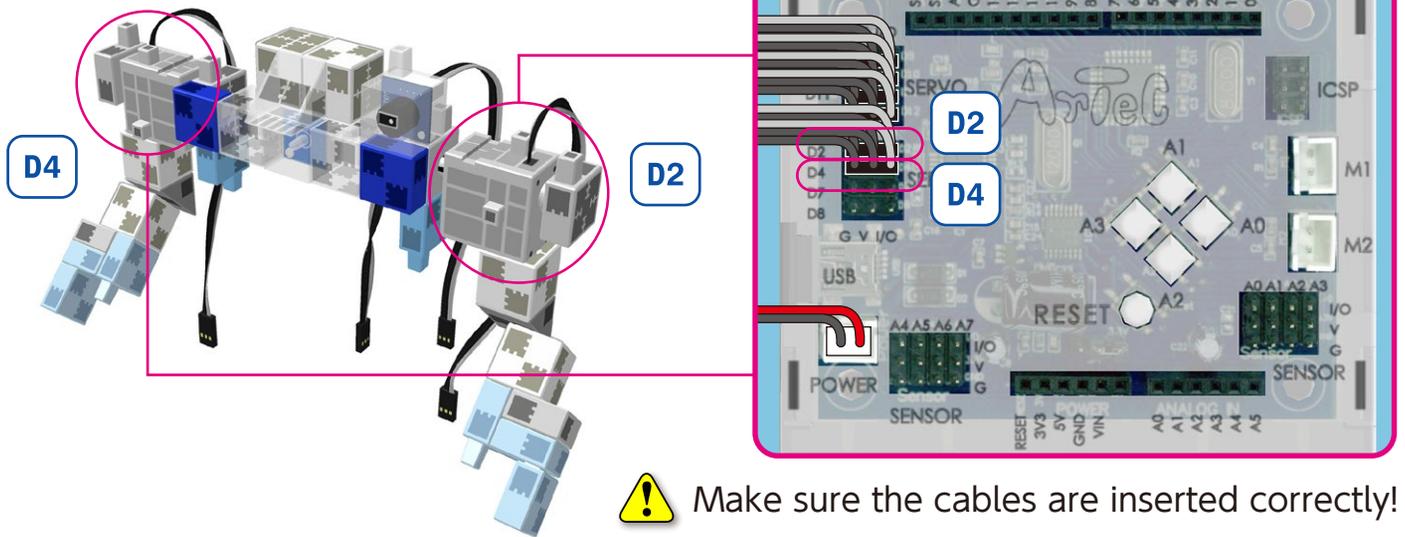


- ① Prepare the upper and lower halves, arranging the cables as shown below.

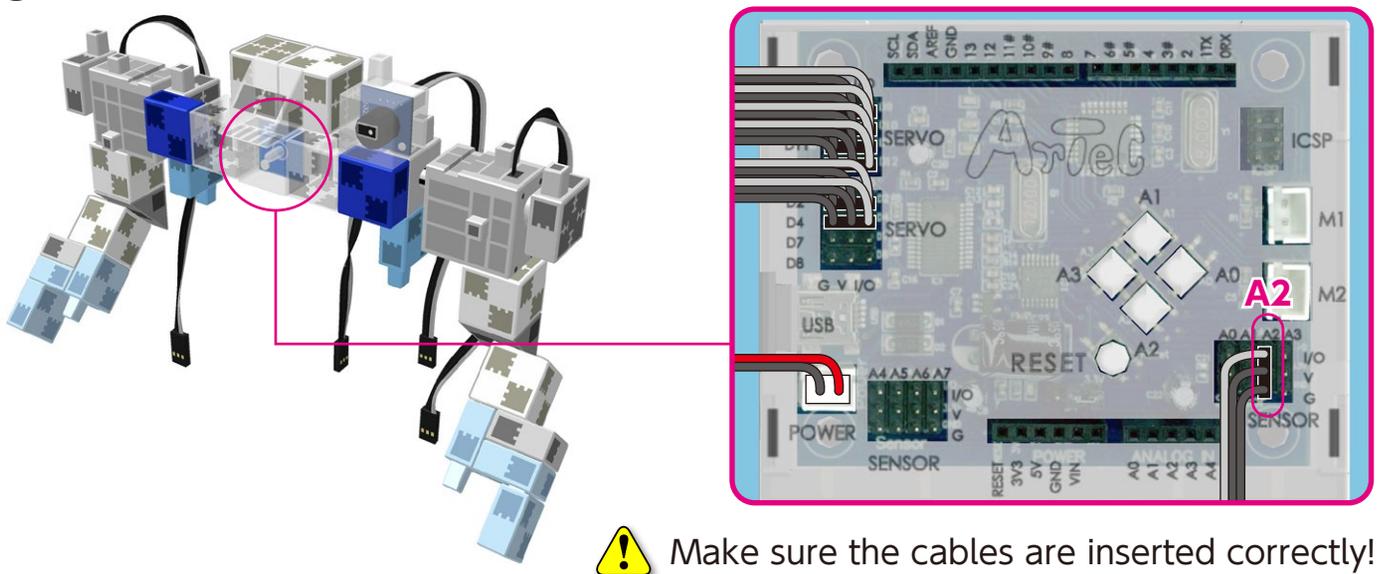


# Transforming Robot

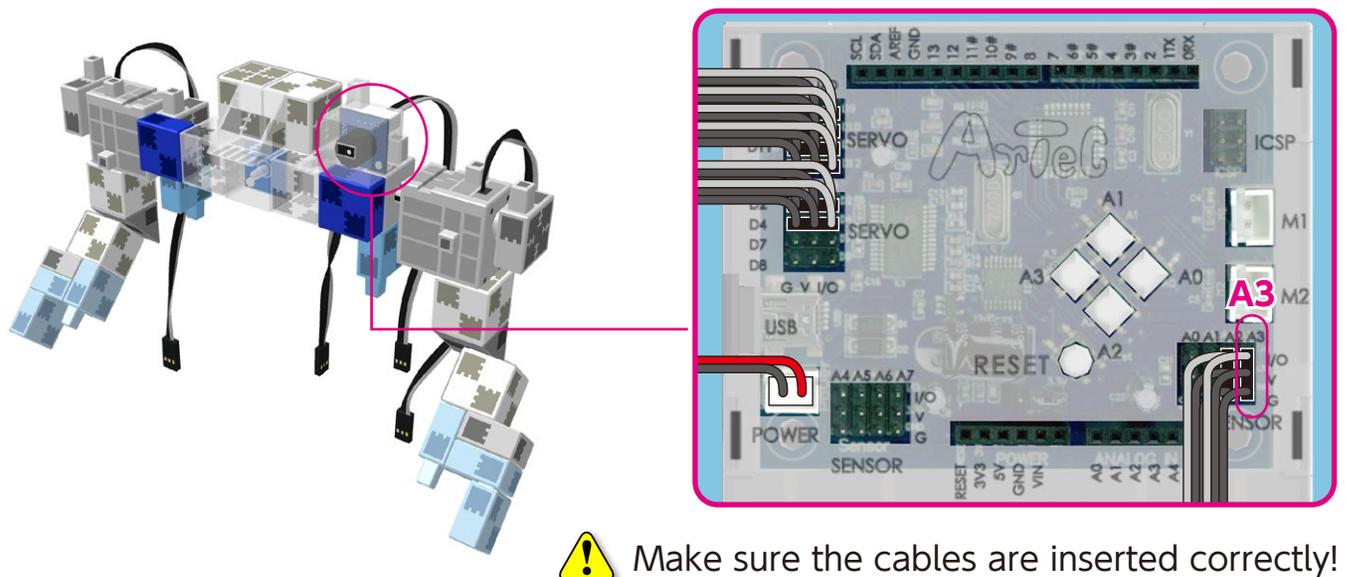
- ② Connect the two cables from the servomotor to their corresponding place on your Studuino unit.



- ③ Connect the cable from the LED to **A2**.

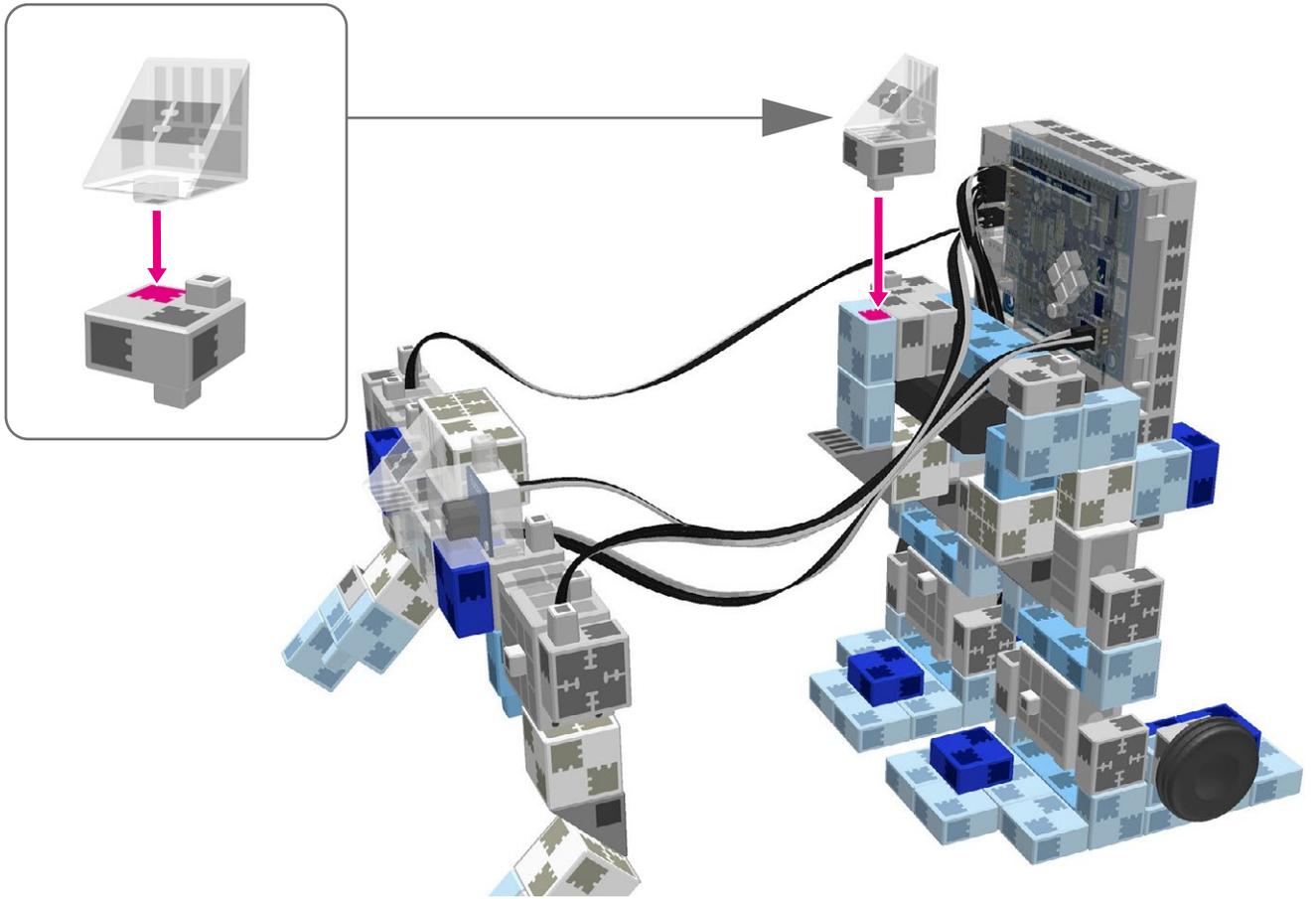


- ④ Connect the cable from the buzzer to **A3**.

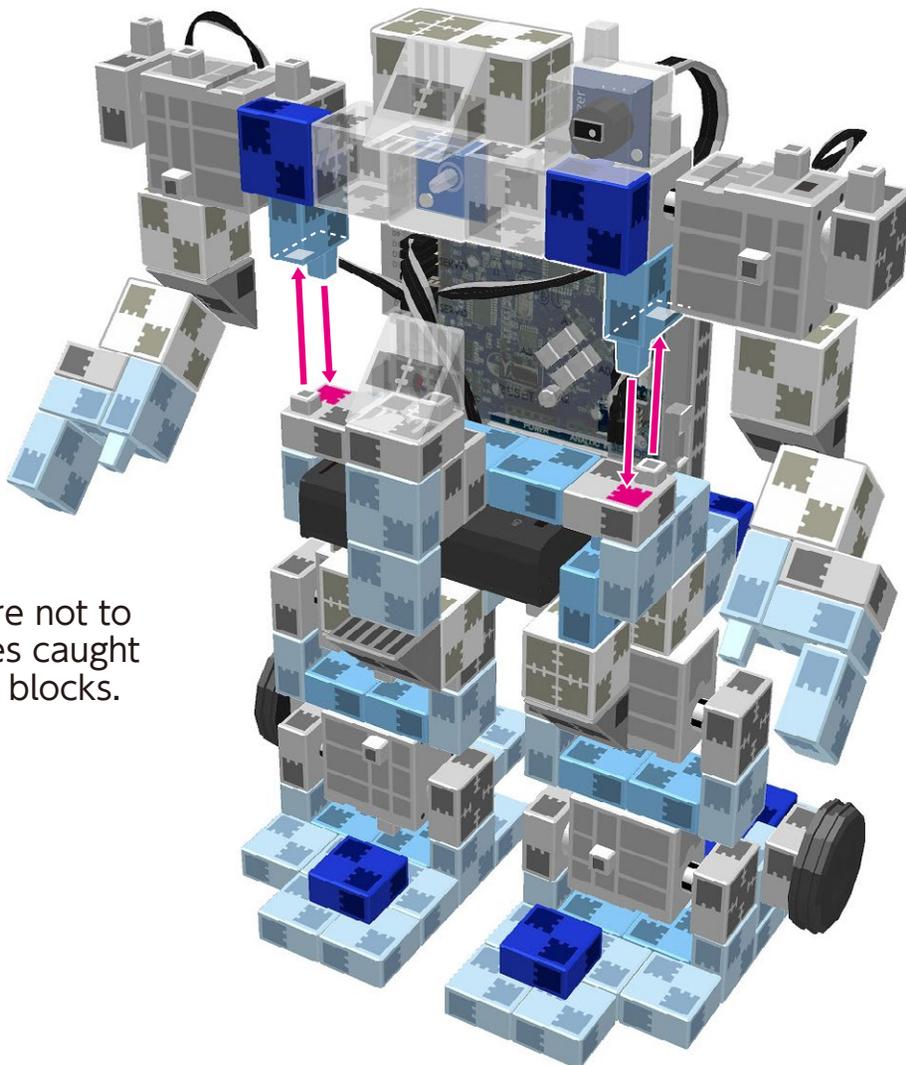


# Transforming Robot

5



6



Make sure not to get cables caught between blocks.

# Transforming Robot

## Making Your Robot Walk

- ① Transfer **TransformingRobot\_2.ipd** to your Studuino.  
See page 19 of this guide for instructions on how to transfer data.
- ② Turn the switch of the battery box on and your robot will start walking.

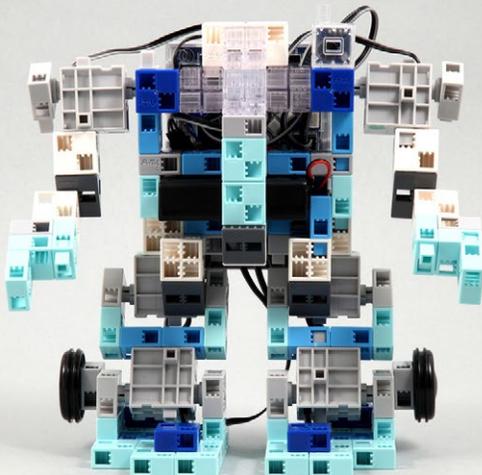
**!** Immediately turn the switch to off if your robot does not begin walking as shown in the picture below.

Not doing so may damage the servomotor.

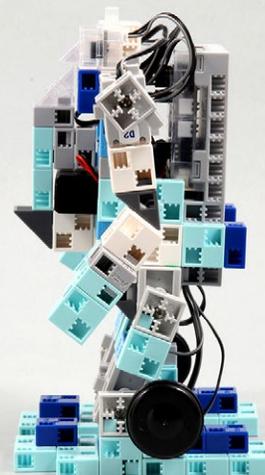
**!** If your robot does not move, the servomotor may be in the wrong position or the blocks may be improperly connected.

Re-read the Assembly Instructions to make sure that your robot has been assembled correctly.

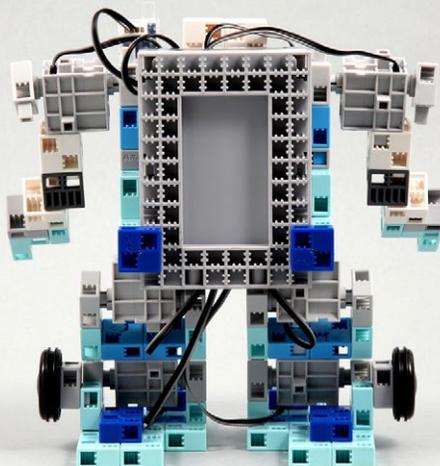
Front



Left



Back

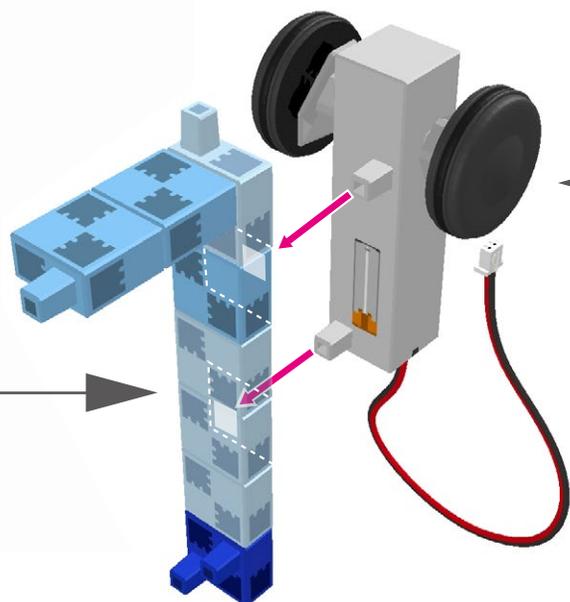
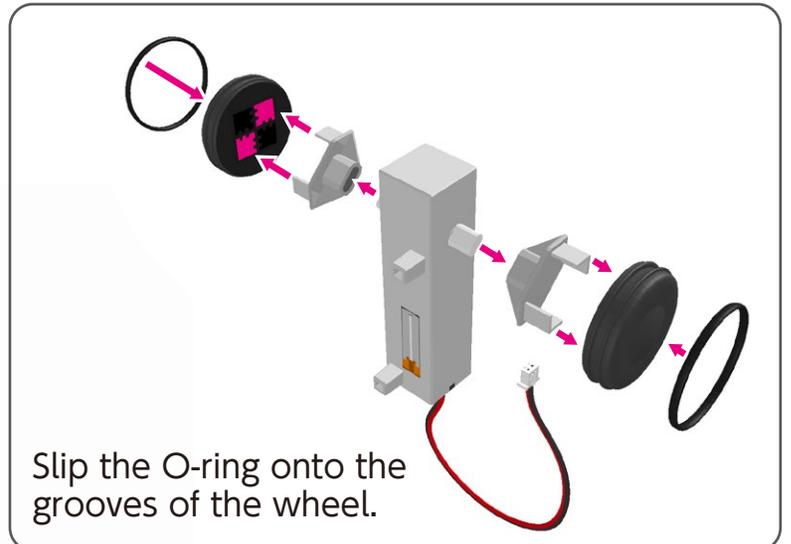
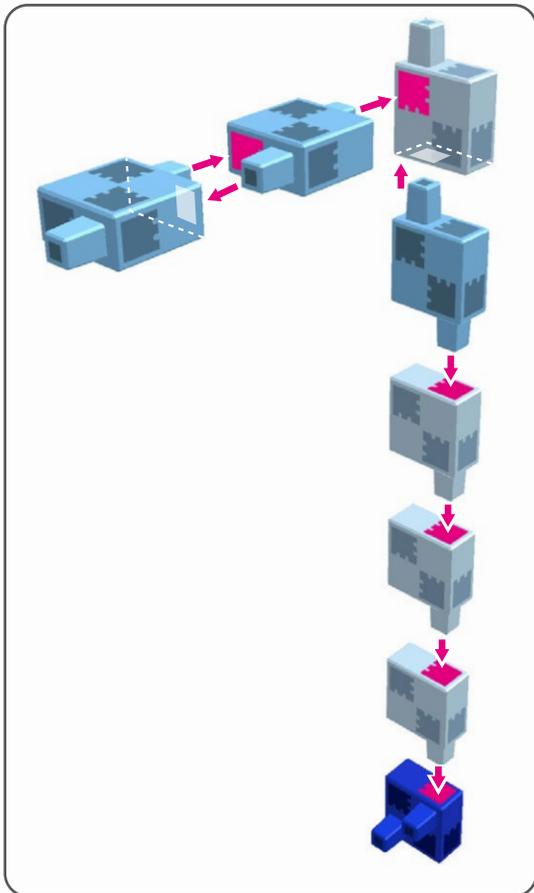
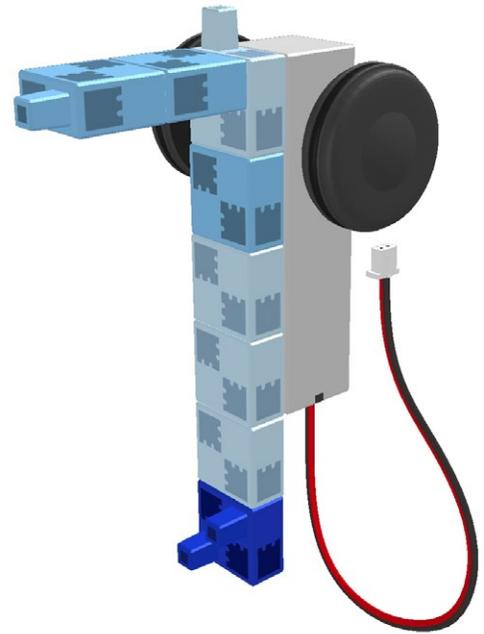
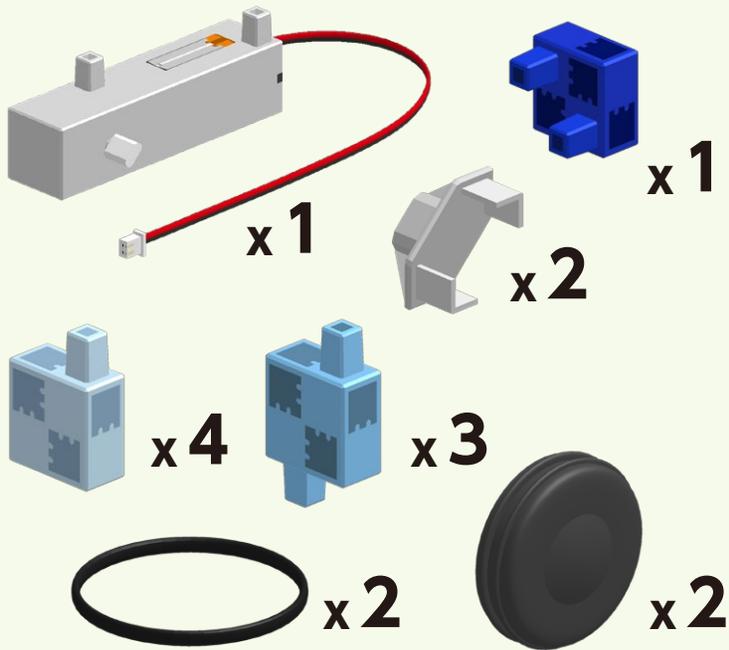


Right



# Transforming Robot

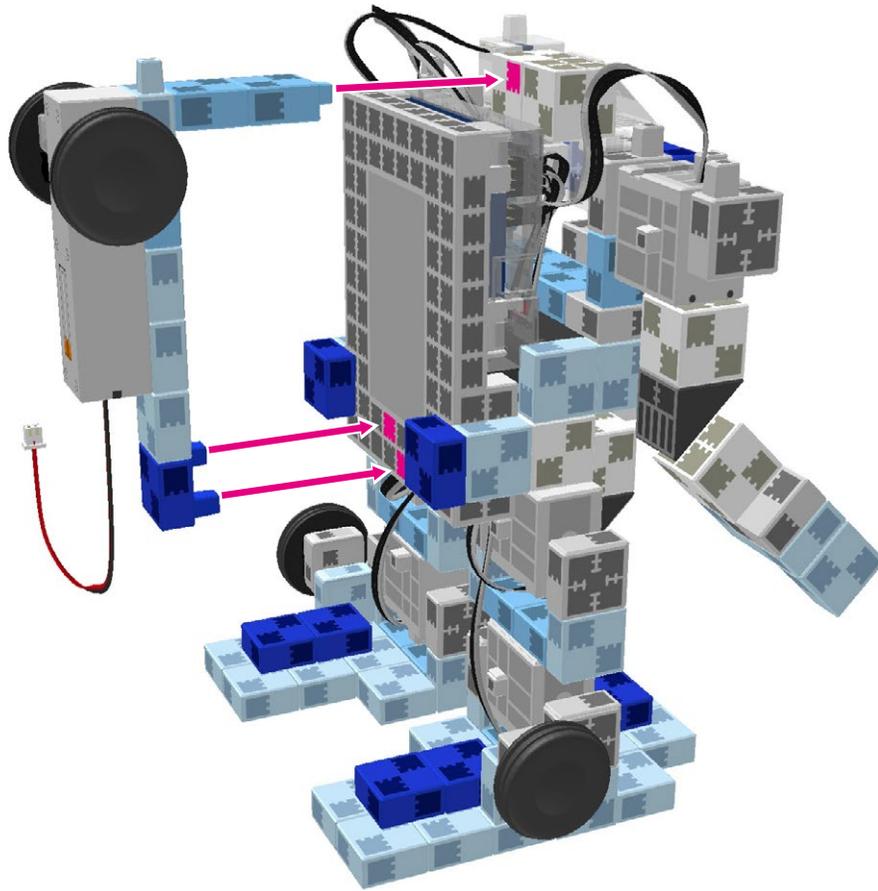
## Assembling Your Transforming Robot



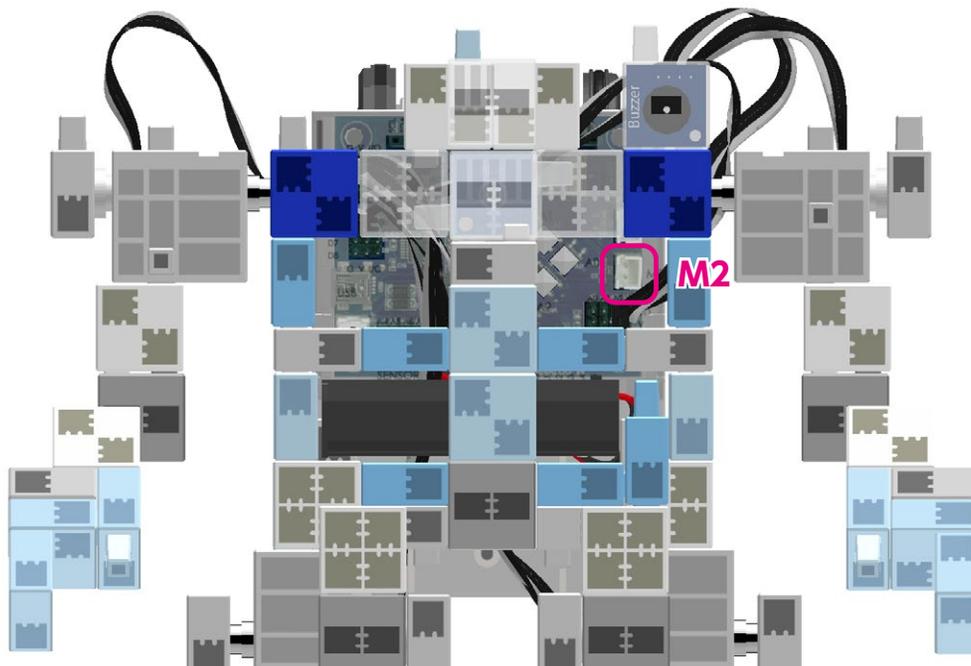
# Transforming Robot

## Assembling Your Transforming Robot

①



② Connect the DC motor to its corresponding place in the picture.



Be careful of the cable's placement.

The cable may disconnect if it becomes caught in a movable part.



If you're having trouble connecting the cable, remove the upper half of your robot and try again.

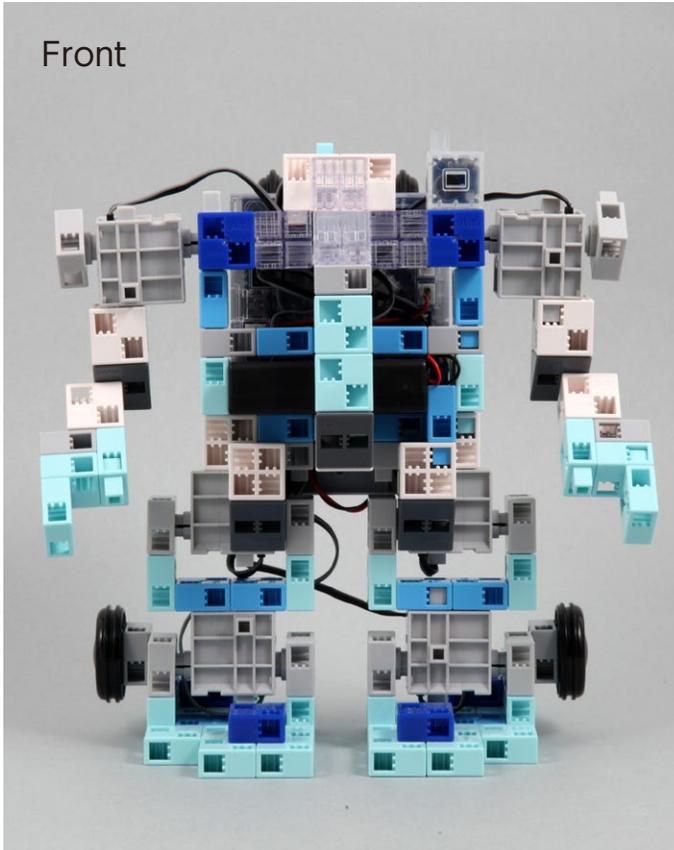
# Transforming Robot

## Completed Transforming Robot

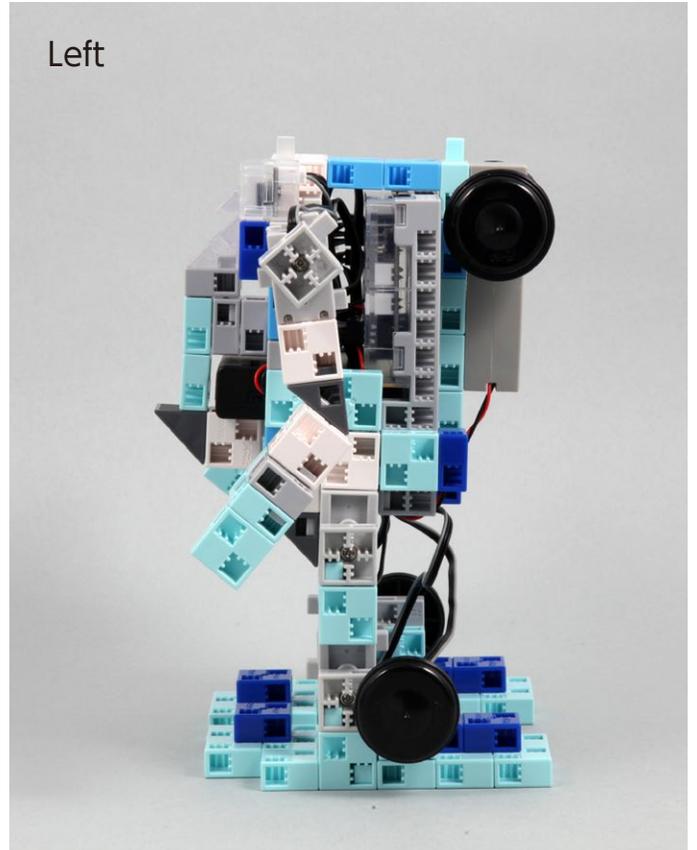


Check the Assembly Instructions again to confirm your robot has been assembled correctly before operation.

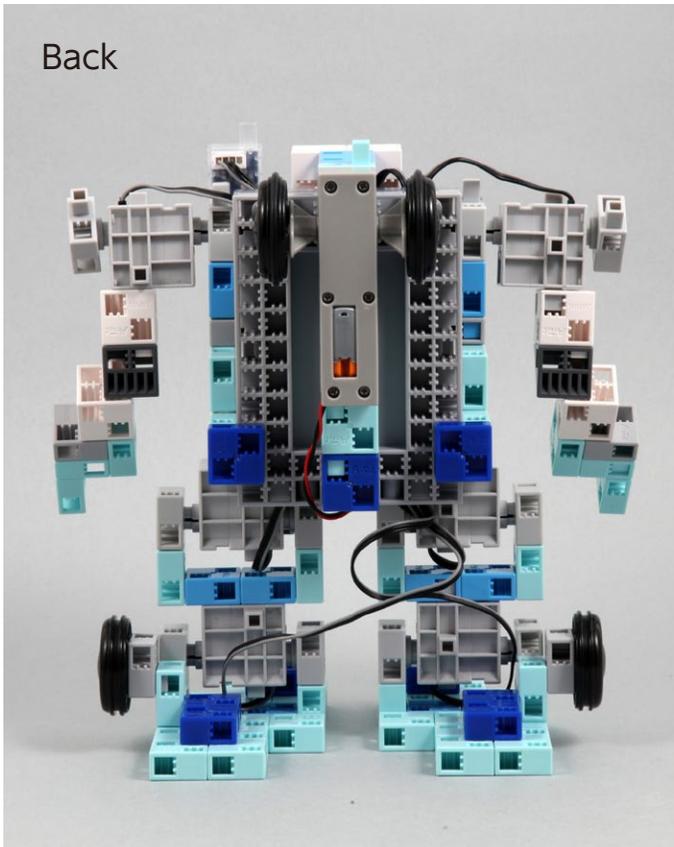
Front



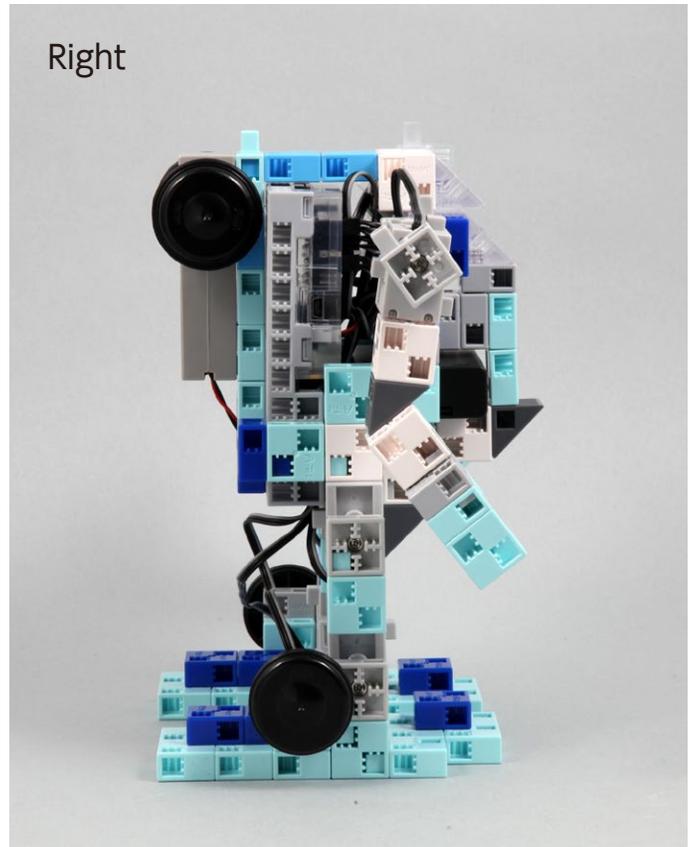
Left



Back



Right



# Transforming Robot

## Operating Your Transforming Robot

- ① Transfer **TransformingRobot\_3.ipd** to your Studuino. See page 19 of this guide for instructions on how to transfer data.
- ② Turn the switch of the battery box on and your robot will start walking.

