



User Manual

Buildy Bots HOMECODING



This manual contains assembly guide on Dino, Puppy and Heli. For more guides on others, please refer to the QR Code.



Buildy BOTS

Buildy Bots Home-Coding Part list



CPU x1



Battery Case x1



Remote Control x1



Receiver Board x1



Motor x2



LED(B-O) x1



Contact Sensor(Y-G) x1



Infrared Sensor x1



Melody Board x1



Double Sided Cable x1



Coding Board Cable x1



Coding Block x20



Coding Board x1



Wheel-Tire x2



Small Wheel(O-G) x2



Sponge (horn) x1



Sponge (Triangle-Hand) x2



Tool x1



Driver Seat x1



4-8 Block Frame x2



Nut(Y-G) x18

Long Nut(R) x7



Bolt(Y-G) x18

Long Bolt(R) x7



Pivot Nut x5



C4 Frame x4

C5 Frame x2



C6 Frame x3

C7-8 Frame x1



C-02-04 Frame x2

05 Frame x5



07-08 Frame x2

010-015 Frame x1



012 Frame x3

020 Frame(Y-G) x1



L3-L4 Frame x2

L5-4 Frame x3



Eye Stickers x1

BUILDY BOTS

[CONTENTS]



How to Assemble 02

About Motor & Battery Case 03

How to Use Remote Control 04

How to Pair a Remote Controller 05

How to Use CPU & Melody Board 06

How to Use Infrared-Contact Sensor & LED 07

How to Use Coding Board & Blocks 08

How to Use Coding Board 09

Download a Program 10

How to change colors of LED display on CPU Board. 13

Make Dino 14

Play Coding 34

Make Puppy 36

Play Coding 56

Make Heli 58

Play Coding 78

CPU Color Programs 80

Q&A 81

How to Use the Wireless Remote Control 82

How to Use Block Frame 84

How To Assemble



Parts

- □12 frame x1
- Nut(Y) x1
- □4 frame x1
- Bolt(G) x1



1

Push the tool down to the bolt.

2 Fit the nut into + shaped hole of the frame.

3 Turn the bolt clockwise while pushing in it.

4 Tilt the tool and pull it back once you fix the bolt.

Long Nut & Bolt

To assemble 3 frames at once.



Pivot Nut & Bolt

To assemble and pivot 2 frames.



About Motor & Battery Case

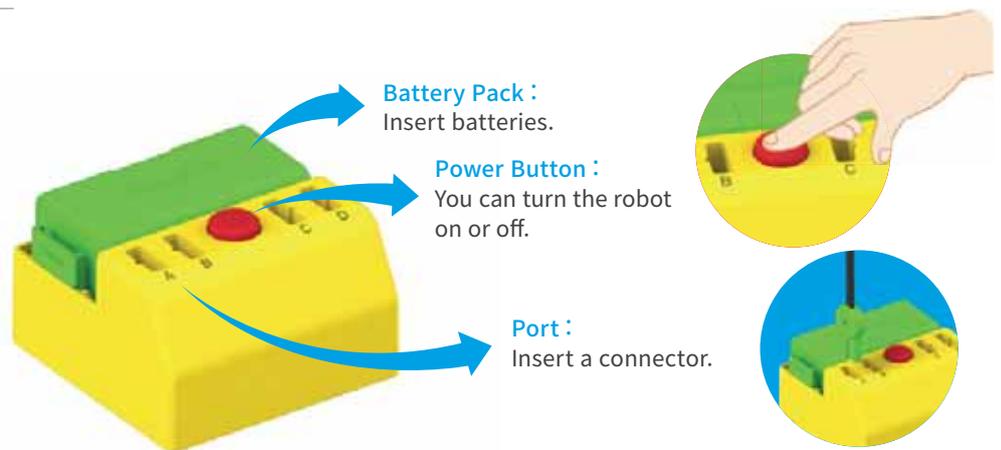
Motor

Motor is a part that rotates a wheel or a frame.



Battery Case

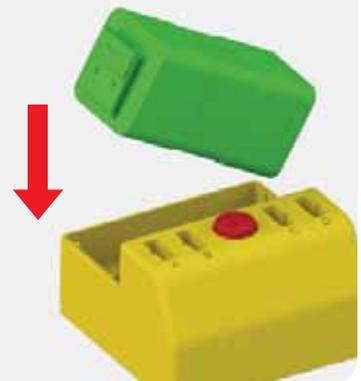
Battery Case is where you insert the batteries to power the robots.



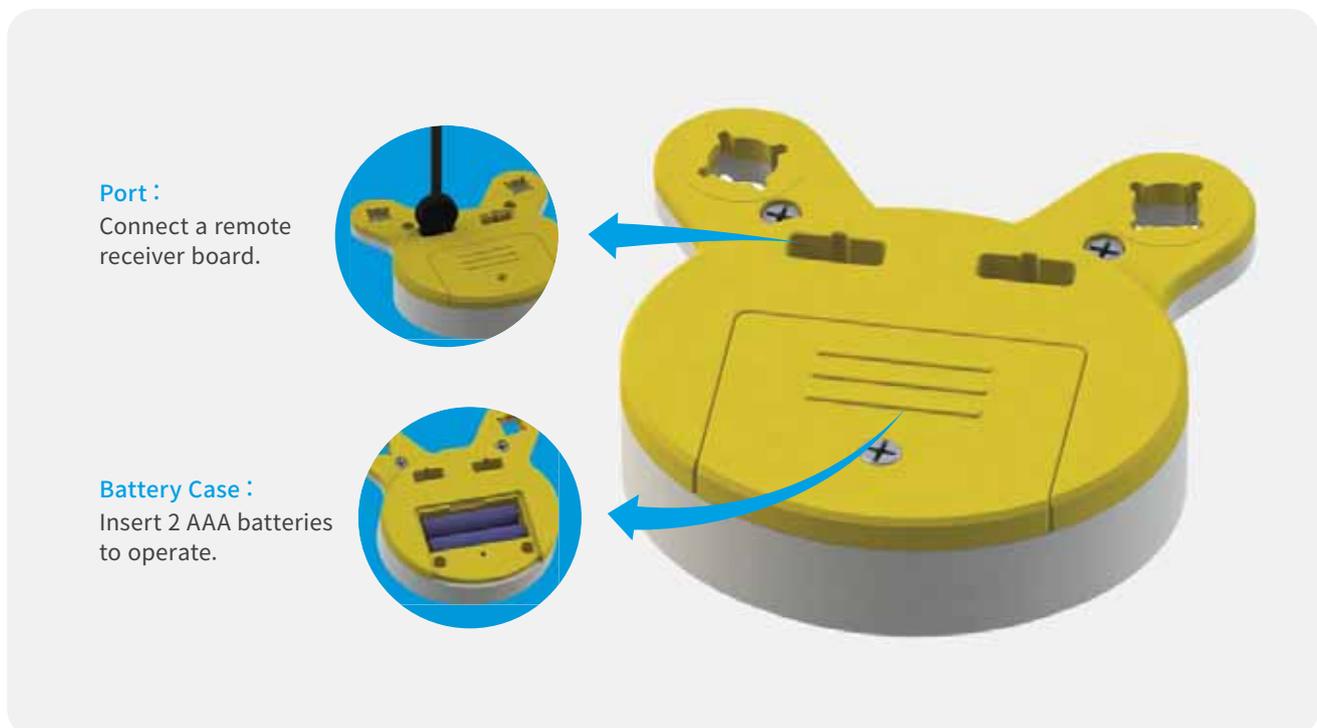
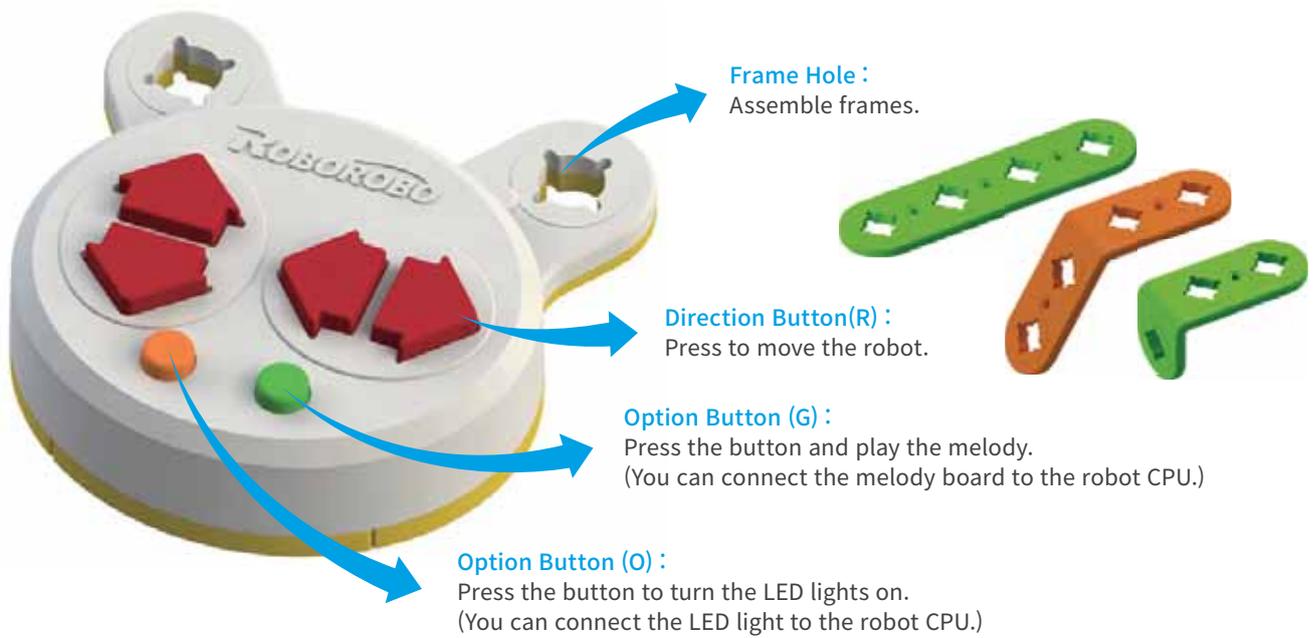
- 1** Insert 4 AA batteries into the Battery Pack and close the lid.
※ Check plus and minus sign of batteries.



- 2** Place the Battery Pack into the Battery Case.



How to Use Remote Control



How to Pair a Remote Controller



To use a remote controller, you need to pair it with a receiver.



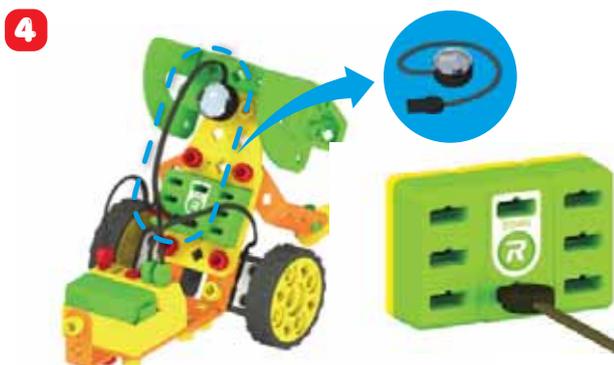
1 Connect a receiver board.



2 Press the button marked with a blue circle. The LED lights will change color each time!
LED : Red > Orange > Yellow > Green > Sky Blue>Blue>Purple>White
(To avoid interference, be sure to set different LED light colors for more than two remote controls.)



3 Pick a color you like. Then, separate the remote control receiver board. Pairing is all set!



4 Connect the remote control receiver board to the CPU board.
(You can connect the CPU board to any of the seven ports. Just make sure not to connect it to the white DOWNLOAD port.)



5 Now, you can move the robot with your wireless remote control!

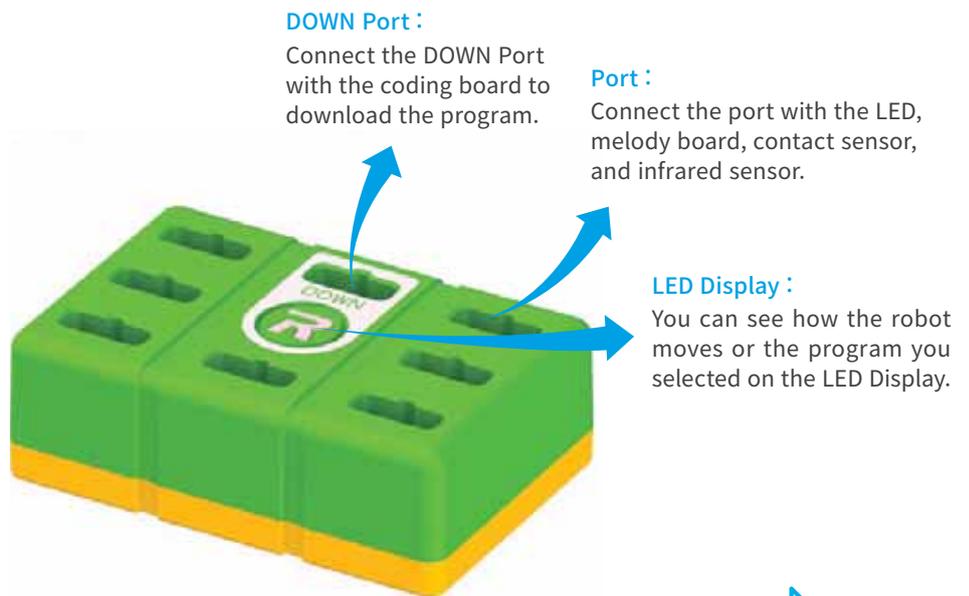
Go to page 82. You can learn more about moving the home coding robot by remote control.

How to Use CPU & Melody Board

CPU Board

The CPU board is like the robot's brain.

To use the CPU Board, connect the LED with the remote receiver board and melody board.



Melody Board

The melody board makes all kinds of sounds.

Connect the melody board to the CPU board.



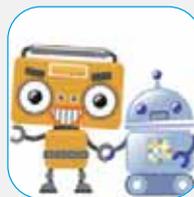
Playlist of Melody blocks



911 Song



Honk Honk Song



Robot Song



Dance Song



Animal Song

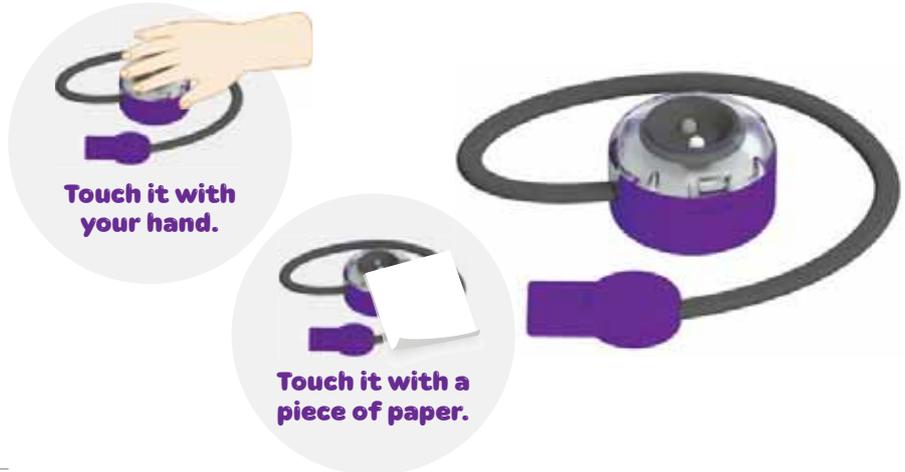
How to Use Infrared·Contact Sensor & LED



Infrared Sensor

The infrared sensor detects an object.

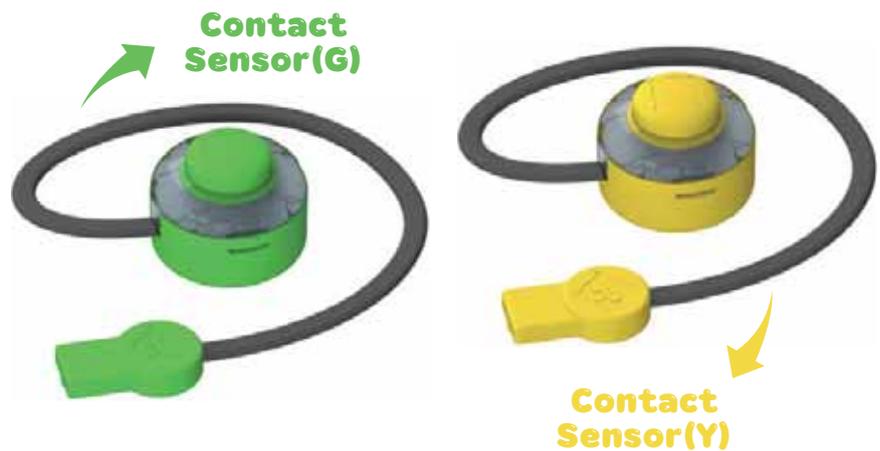
Touch the infrared sensor with your hand or an object. Then, you can see a lot of movements.



Contact Sensor

The contact sensor detects whether you pressed the button.

Connect the contact sensor to the CPU board.



LED

LED shows bright and colorful lights. Connect the LED lights to the CPU board.



How to Use Coding Board & Blocks



Coding Board

The coding board programs the robot to move.



Coding Block

Use the coding block with the board. They each make the robot move in different ways.

	LED(Red) Red Light On 1EA		LED(Blue) Blue Light On 1EA		LED(Green) Green Light On 1EA		Contact Sensor Operation Command 1EA
	LED(Yellow) Yellow Light On 1EA		LED(Orange) Orange Light On 1EA		LED(Purple) Purple Light On 1EA		Contact Sensor Operation Command 1EA
	Forward Move Forward DC Motor on port A, B 2EA		Backward Move Backward DC Motor on port A, B 2EA		Left Turn Left DC Motor on port A, B 1EA		Right Turn Right DC Motor on port A, B 1EA
	Infrared Sensor Detect Object 1EA					Melody Play Melody 5EA	

How to Use Coding Board



Coding Board

Battery

Coding Board operates with 4 AA batteries.



Coding Block Space :
To put coding blocks on.

Send Button :
To download a program to a robot.

Power Button :
To turn on and off.

- 1 Remove the battery cover by sliding it on the back of the Coding Board.

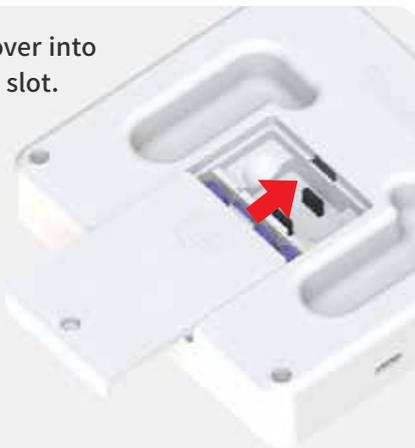


- 2 Insert 4 AA batteries.

※ Check out plus and minus sign of batteries.



- 3 Push the cover into the battery slot.



<Direction of Batteries>



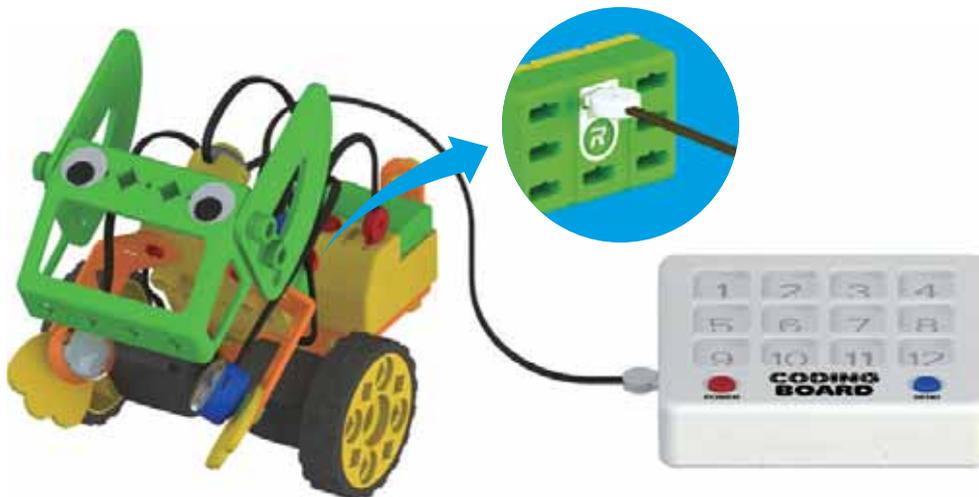
Download Program(1)



Prepare the program with the coding board. Let's learn how to move the robot.

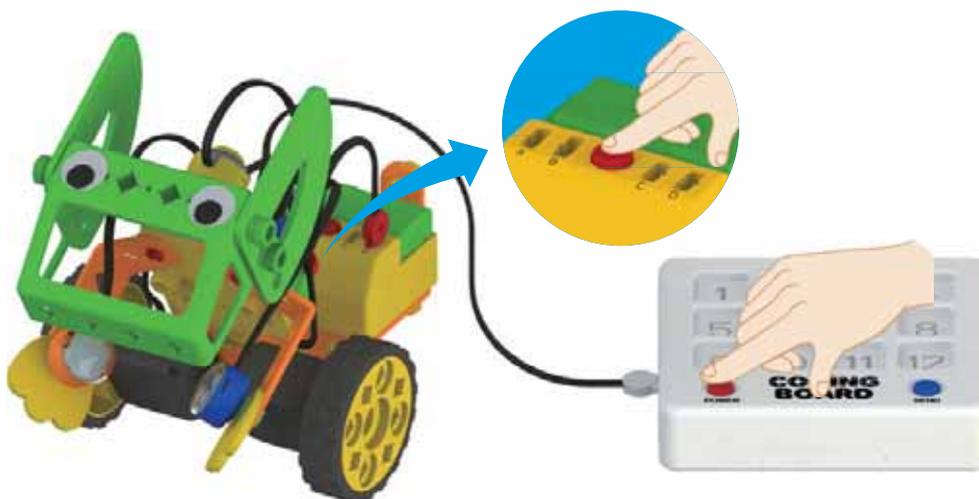
Materials : Robot(completed), Coding Board, Coding Cable, Coding Block

1



Connect the coding cable with the coding board and robot.
(Connect the cable to the white Download Port on the CPU Board.)

2



Turn the robot and the coding board on.

Download Program(2)

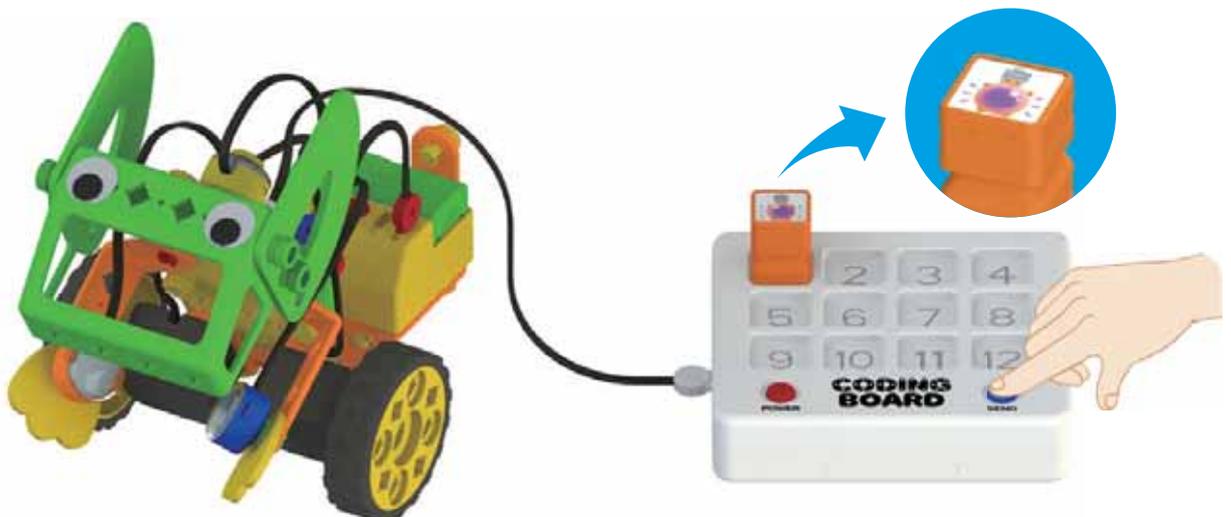
3



Press the robot's contact sensor. Set the color of LED display on the CPU board to White.

Read page 13 to learn more about changing the colors of the LED display on the CPU board.

4



Put coding block like the picture above on the coding board.
All you have to do now is press the blue button and download.

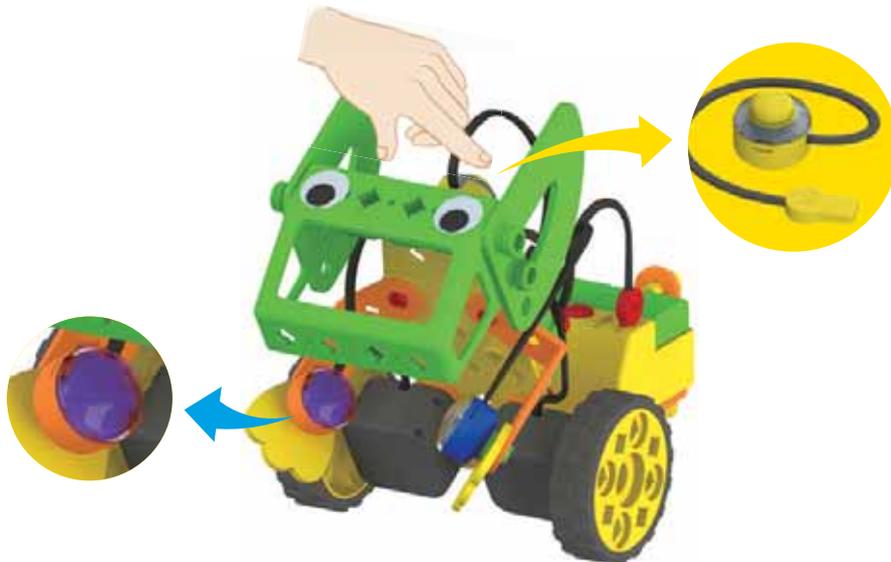
Download Program(3)

5



Separate the coding cable.

6



Press the contact sensor of the robot and make it move.
You can see the purple light on the LED.

How to change colors of LED display on CPU Board



When you connect the coding board to download a program, make sure the LED display color is [White]. You can change colors of the LED display as follows :



1



Press the battery case button.
(Then the light of the battery case and the LED display on the CPU board turns on.)

2



Hold down the contact sensor for at least three seconds. (The lights of the LED display on the CPU board should blink.)

3



Make the color change by short-pressing the contact sensor. LED: Red > Orange > Yellow > Green > Blue > Purple > White

Read page 80 to see how the robot moves to each color of the LED display on the CPU.

4



When the contact sensor turns white, long-press it for at least three seconds. The light stops blinking, and your selection is complete.

TIP

If you turn the robot on and off, the last color you set is on display. So, you can move it right away.



01

MAKE DINO!



1 PARTS



x1



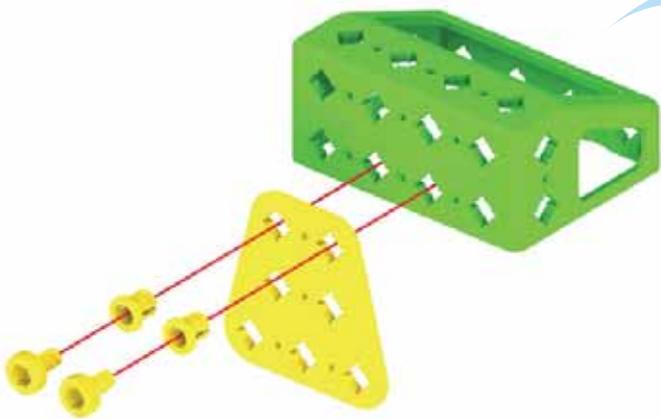
x1



x2



x2



MAKE DINO

2 PARTS



×1



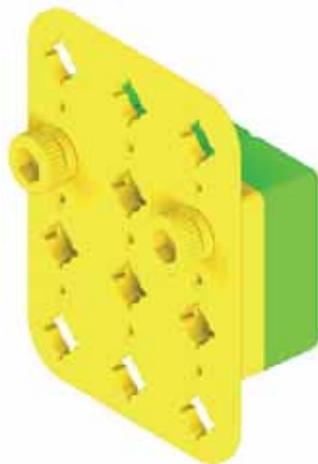
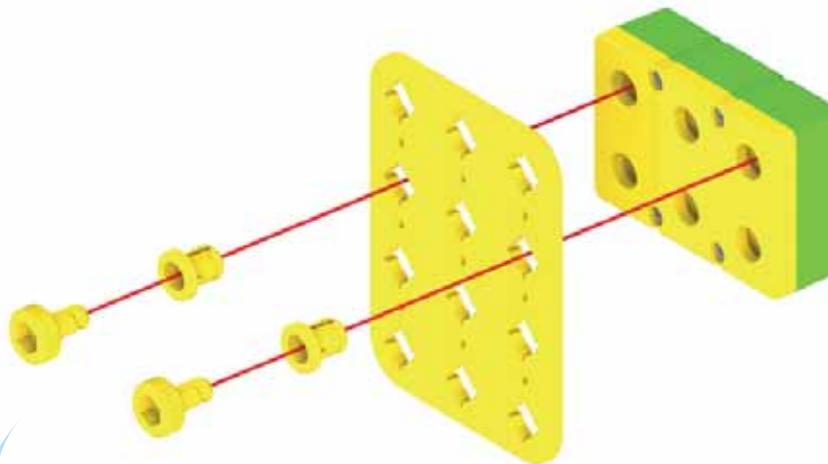
×1



×2



×2



opposite side

3 PARTS



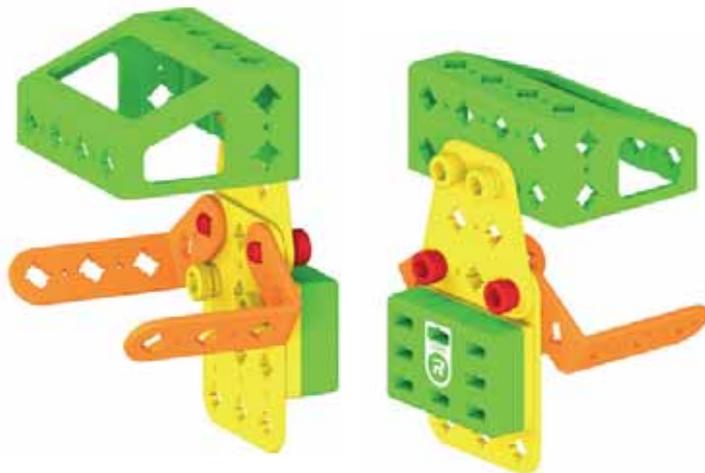
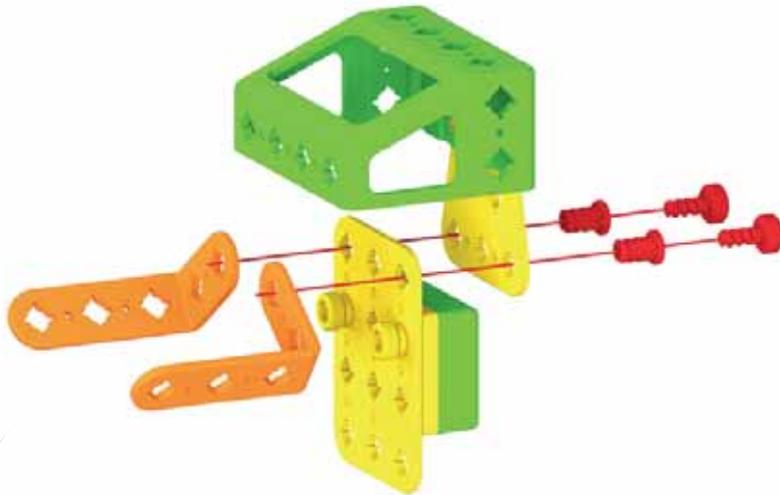
x2



x2



x2



opposite side

MAKE DINO

4 PARTS



x1



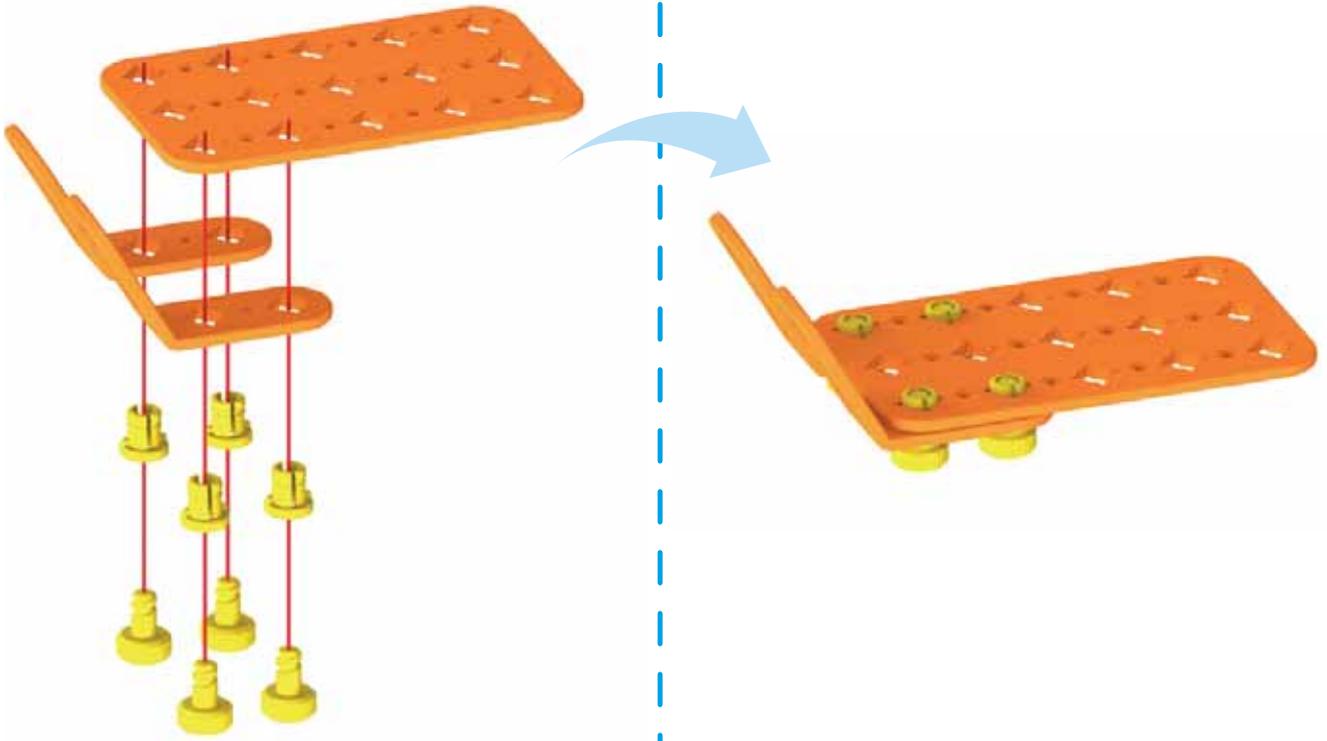
x2



x4



x4



5 PARTS



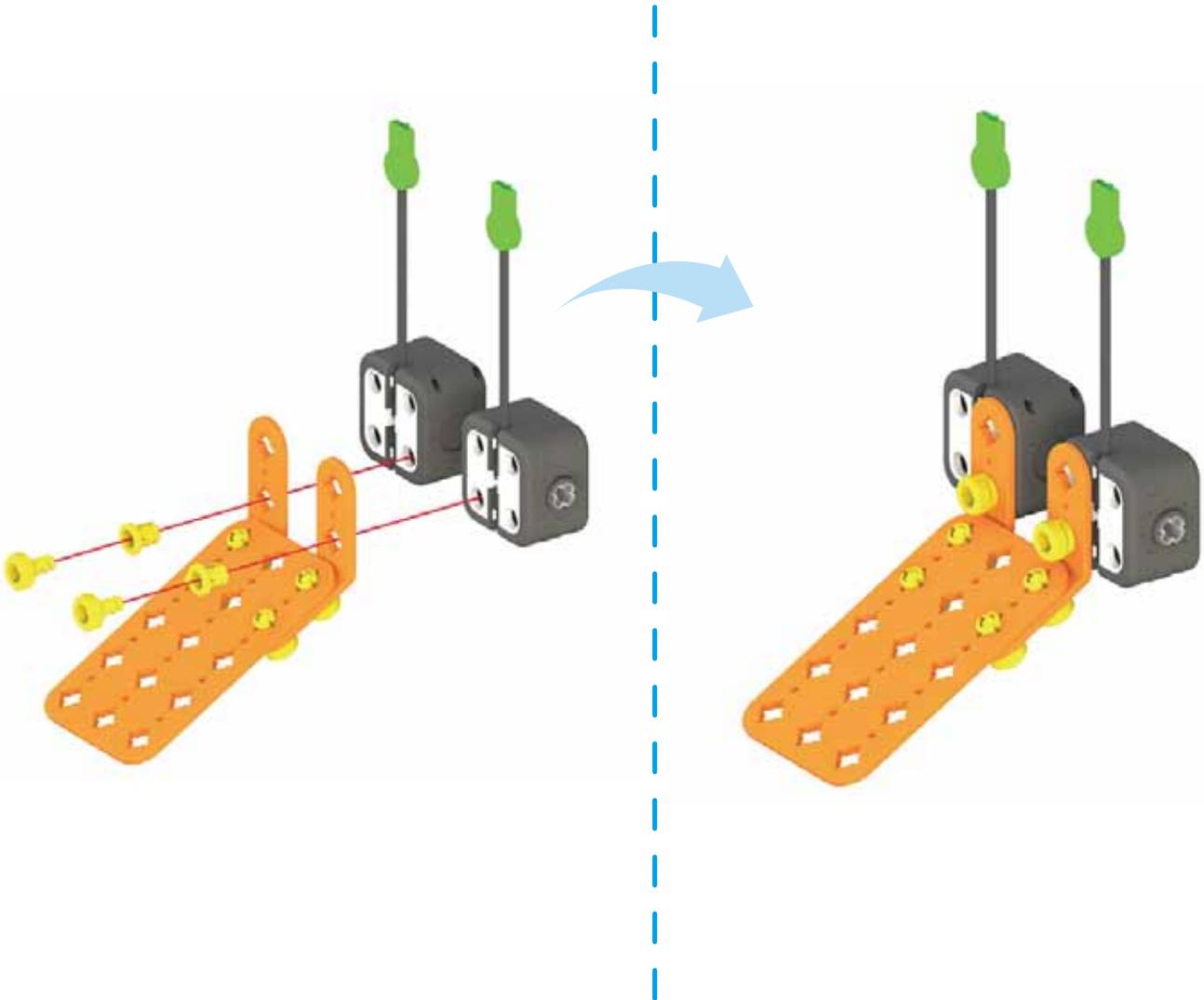
x2



x2



x2



MAKE DINO

6 PARTS



x2



x2



7 PARTS



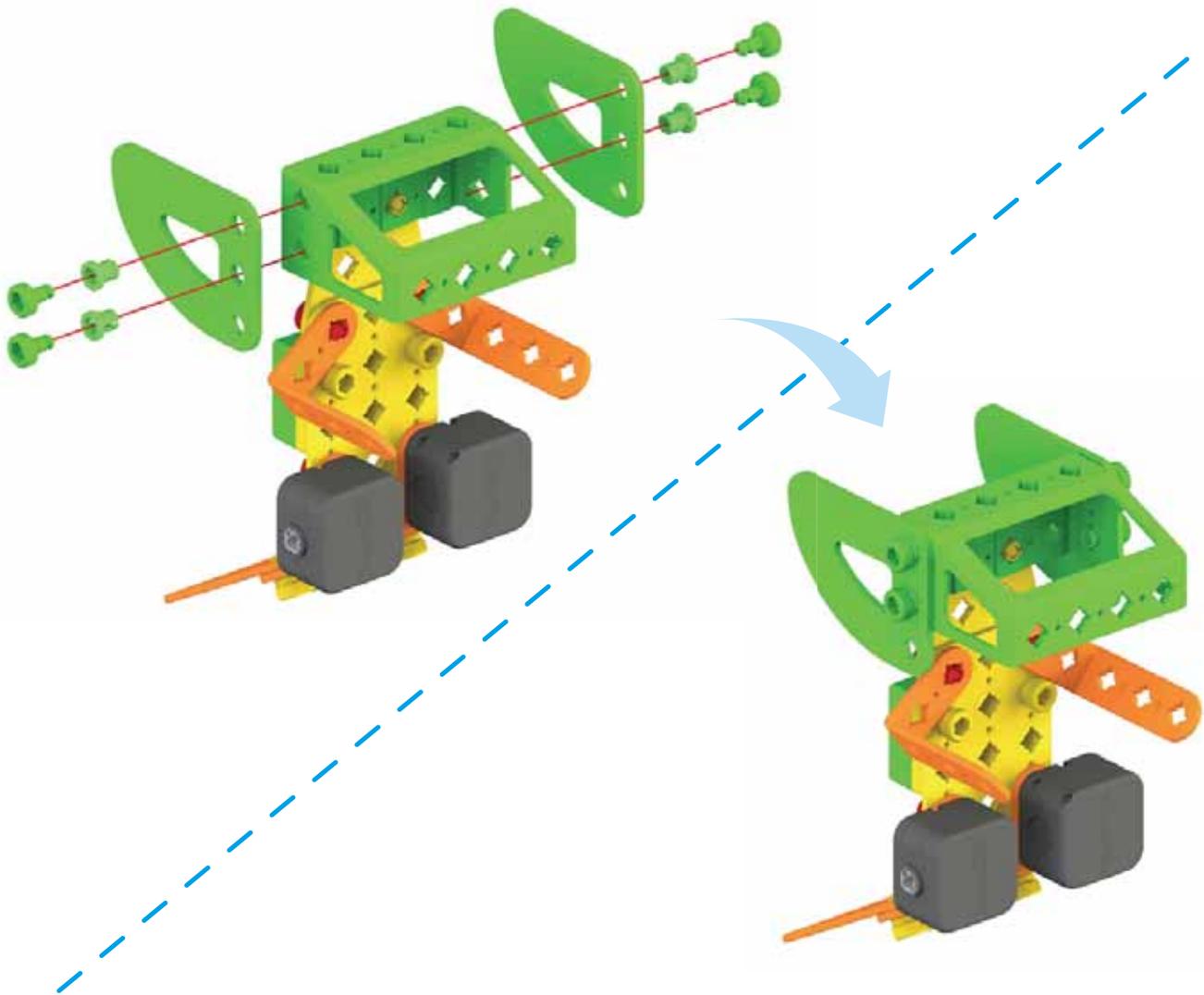
×2



×4



×4



MAKE DINO

8 PARTS



×1



×1



×1





PARTS



×1



×1



×1



MAKE DINO

10 PARTS



×1



×2



×2



11 PARTS



×1



×1



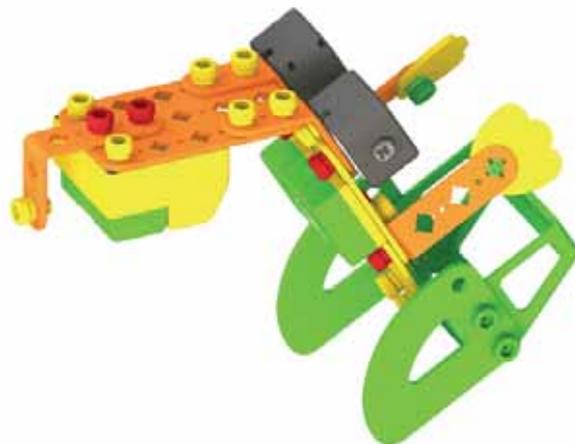
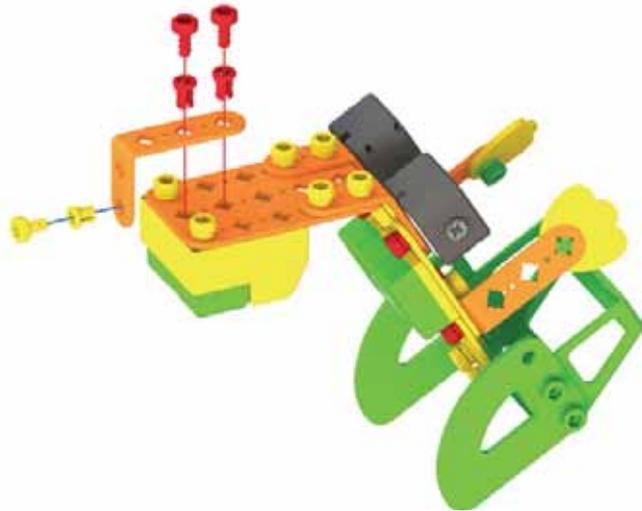
×2



×1



×2

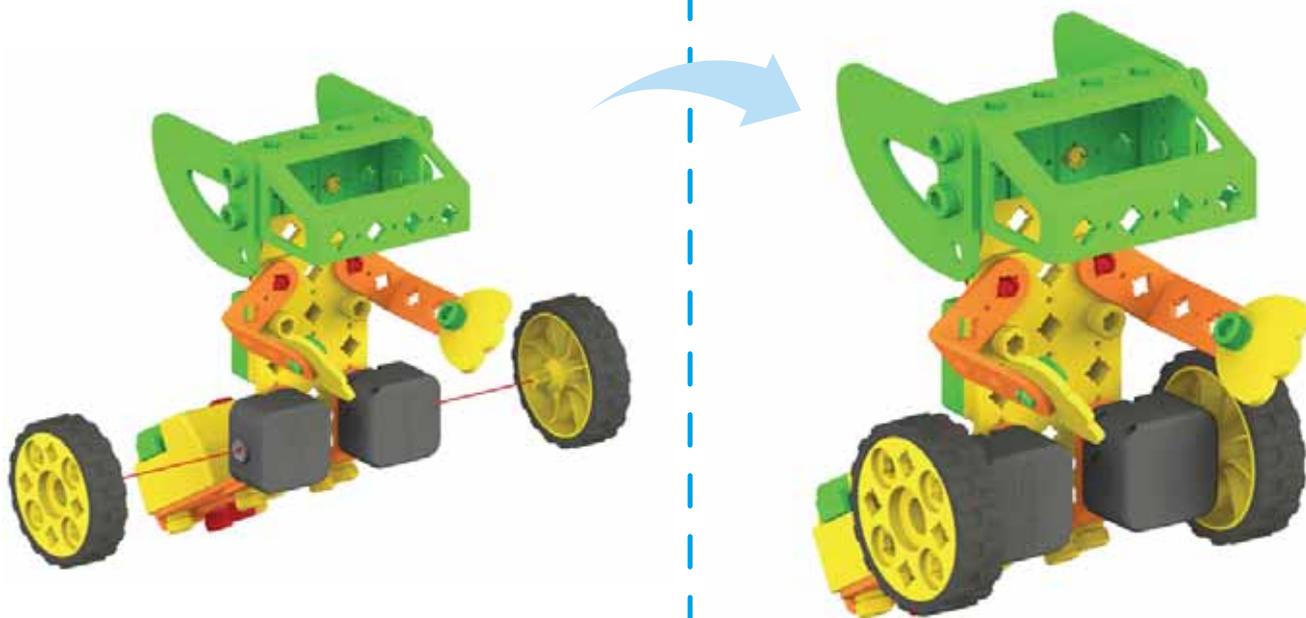


MAKE DINO

12 PARTS



×2



13 PARTS



×1

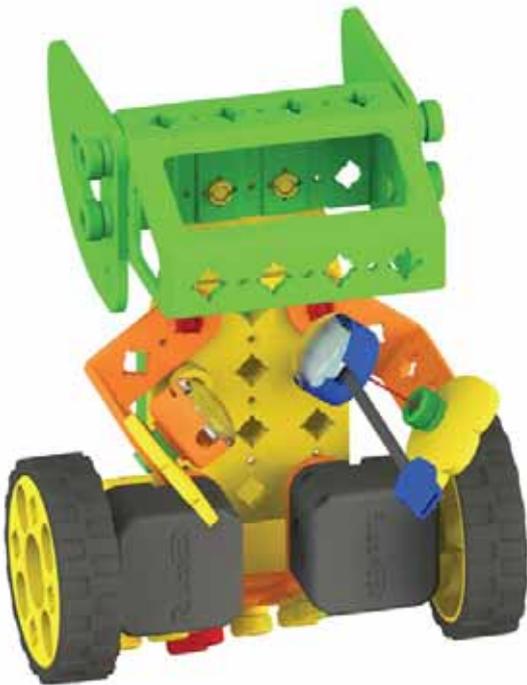


MAKE DINO

14 PARTS



×1



15 PARTS



×1

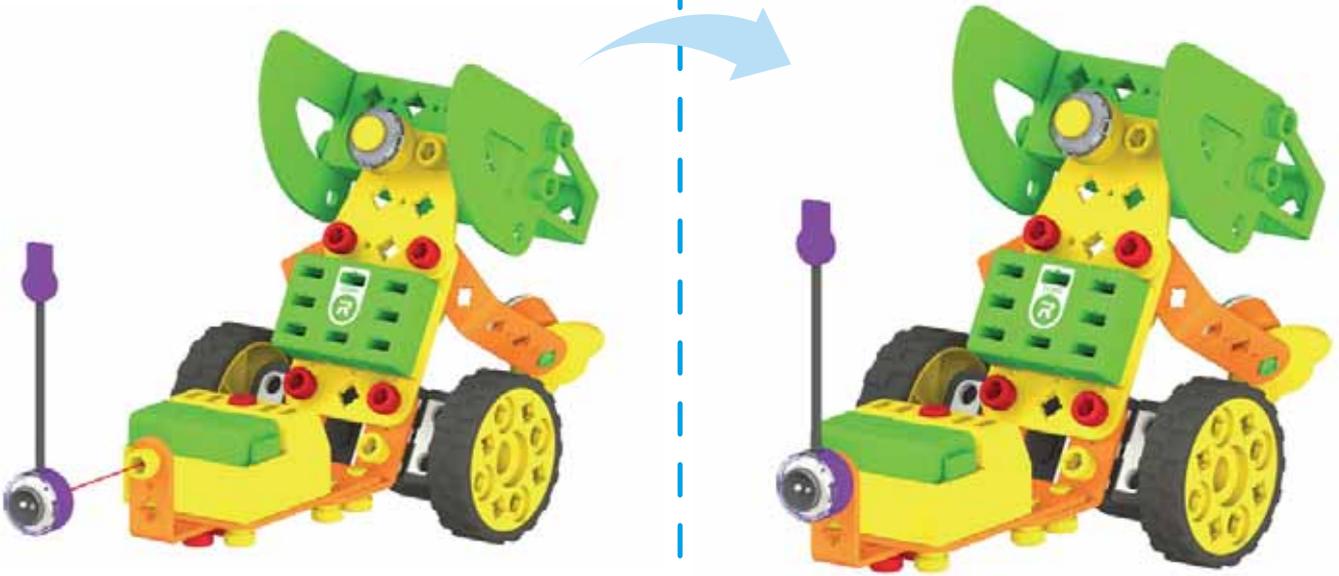


MAKE DINO

16 PARTS



×1

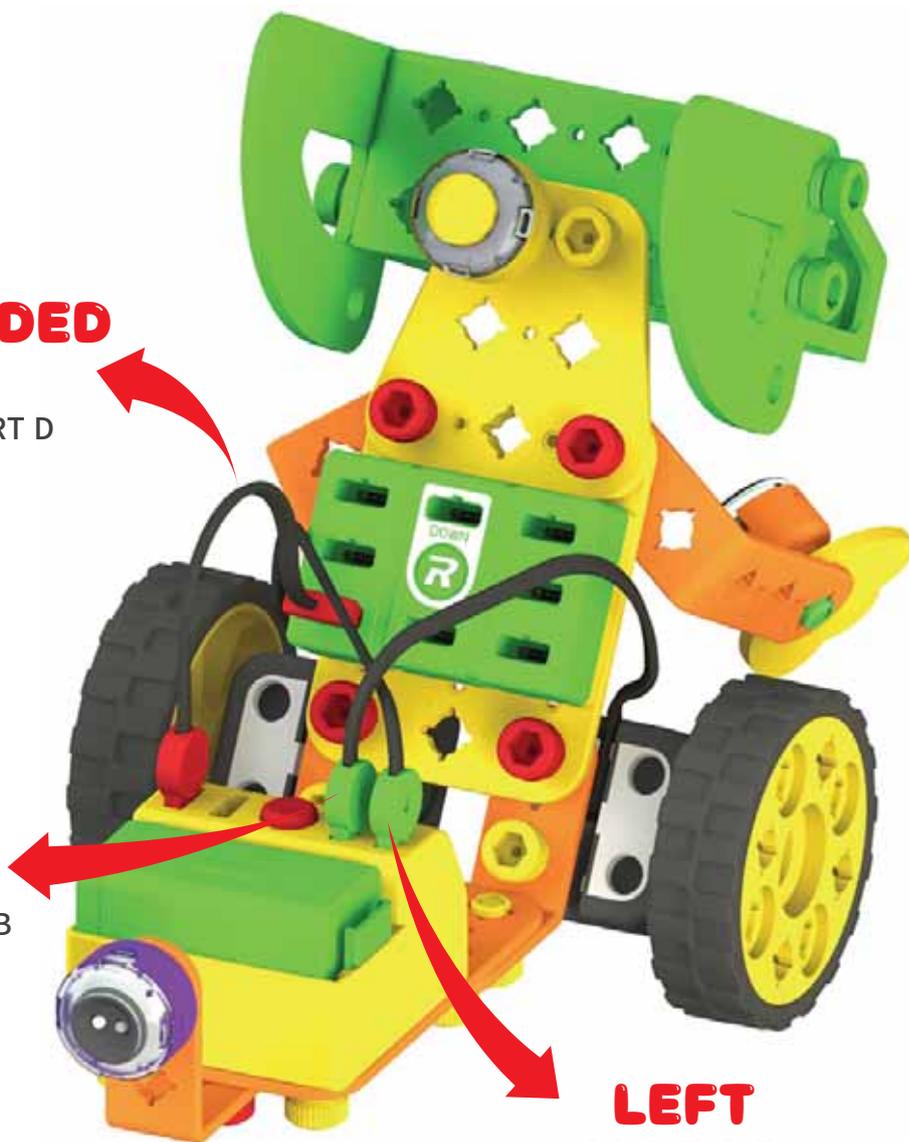


**DOUBLE SIDED
CABLE**

CONNECT TO PORT D

**RIGHT
MOTOR**

CONNECT TO PORT B



**LEFT
MOTOR**

CONNECT TO PORT A

MAKE DINO

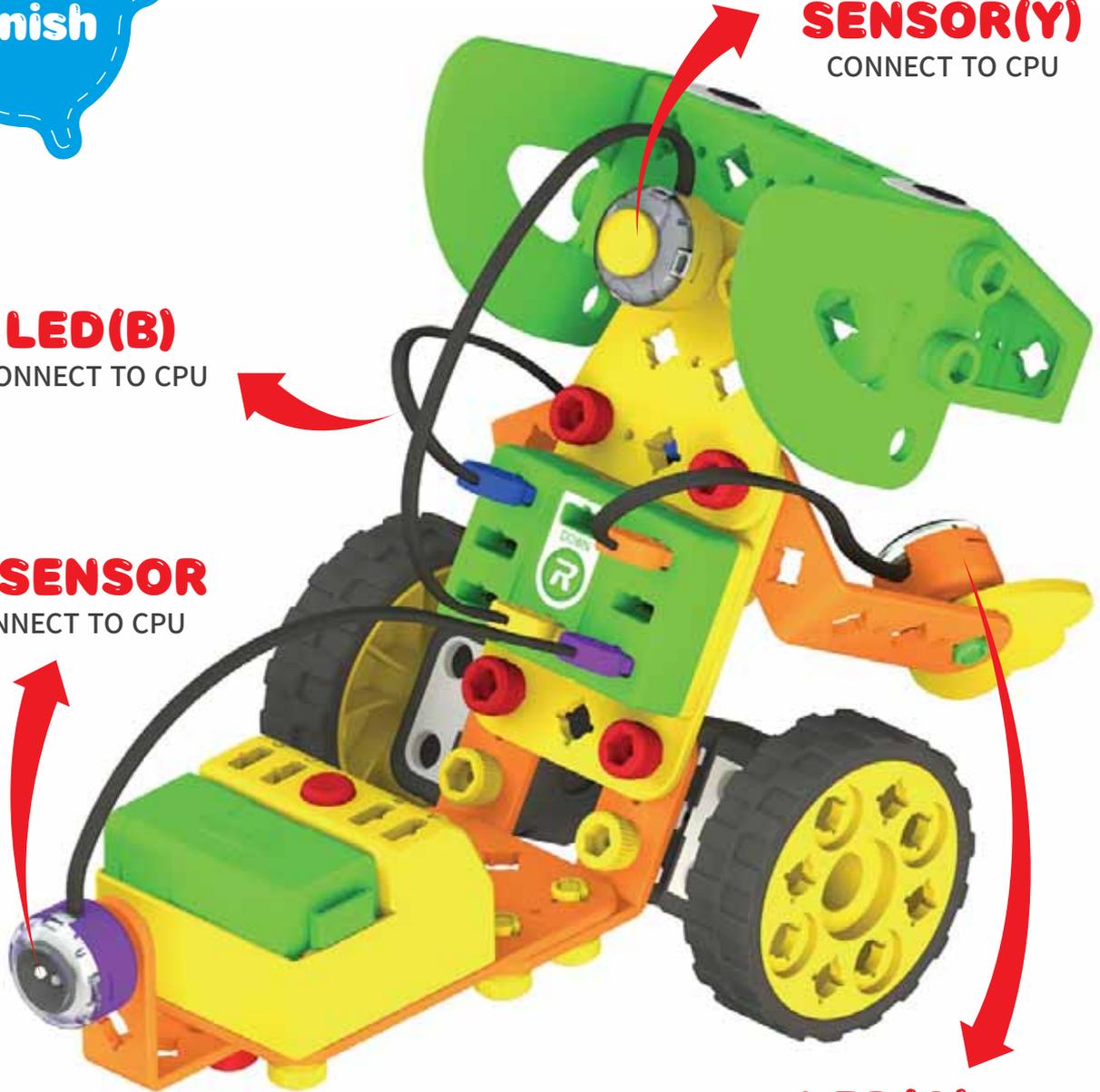
Finish

LED(B)
CONNECT TO CPU

IR SENSOR
CONNECT TO CPU

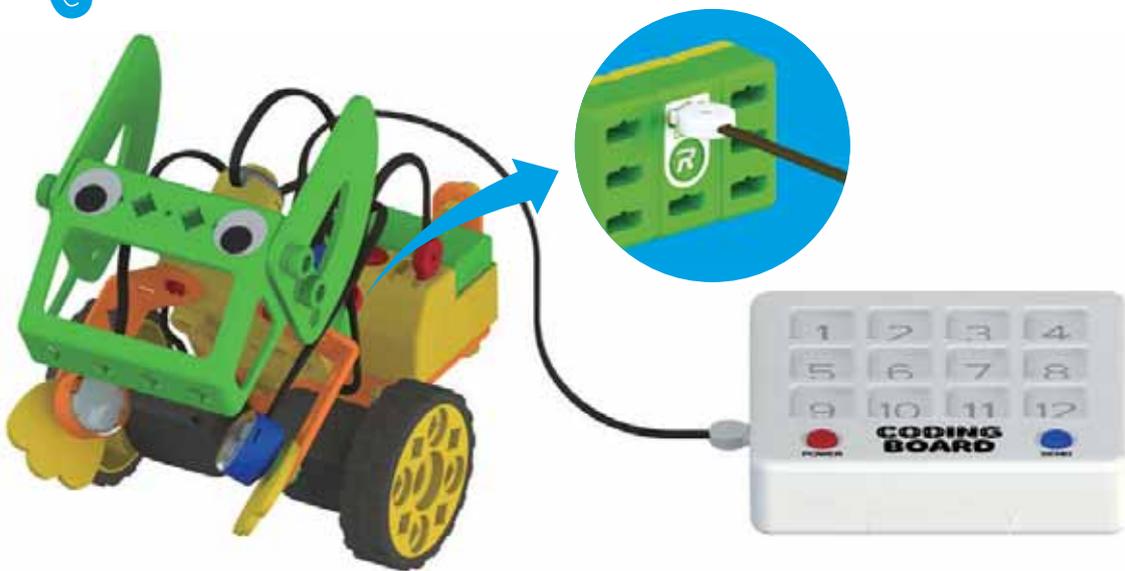
**CONTACT
SENSOR(Y)**
CONNECT TO CPU

LED(O)
CONNECT TO CPU



Play Coding

Connect Dino to the coding board to code it.

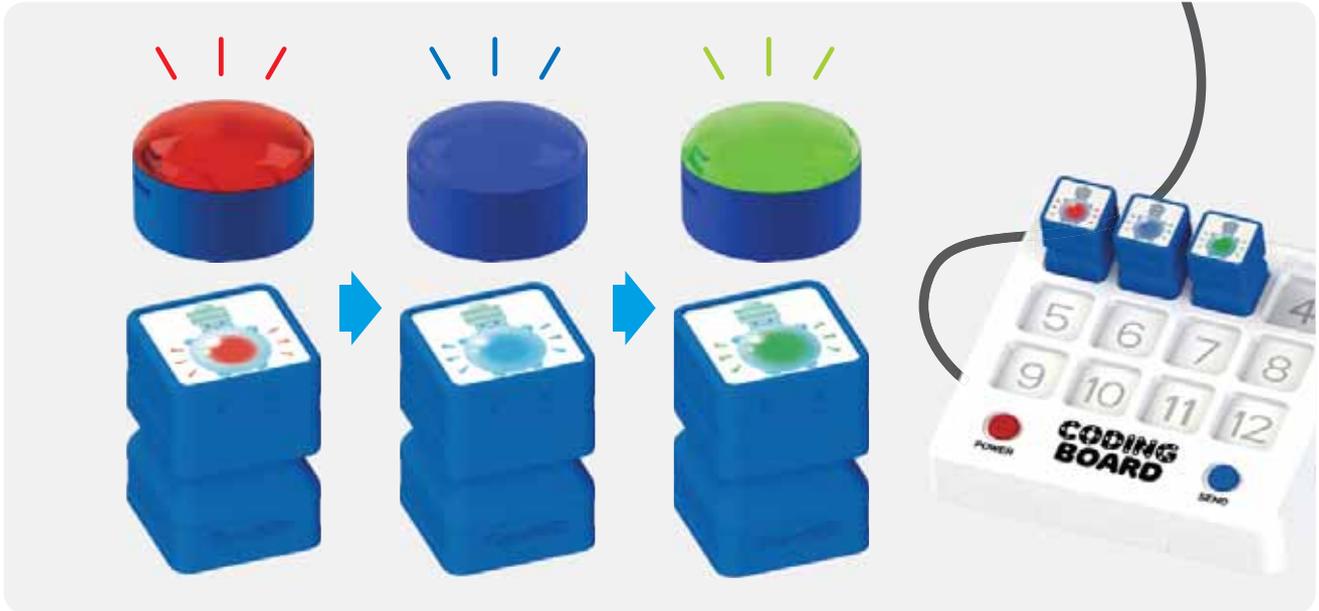


- 1 If you want to use the coding board, connect it with the robot by the cable. (Use the DOWNLOAD port of the CPU)
- 2 Turn the robot on.
- 3 Turn the coding board on.
- 4 Put a coding block on the coding board.
- 5 Press the blue button on the coding board.
- 6 Separate the coding cable.
- 7 You have successfully downloaded the program through the robot!

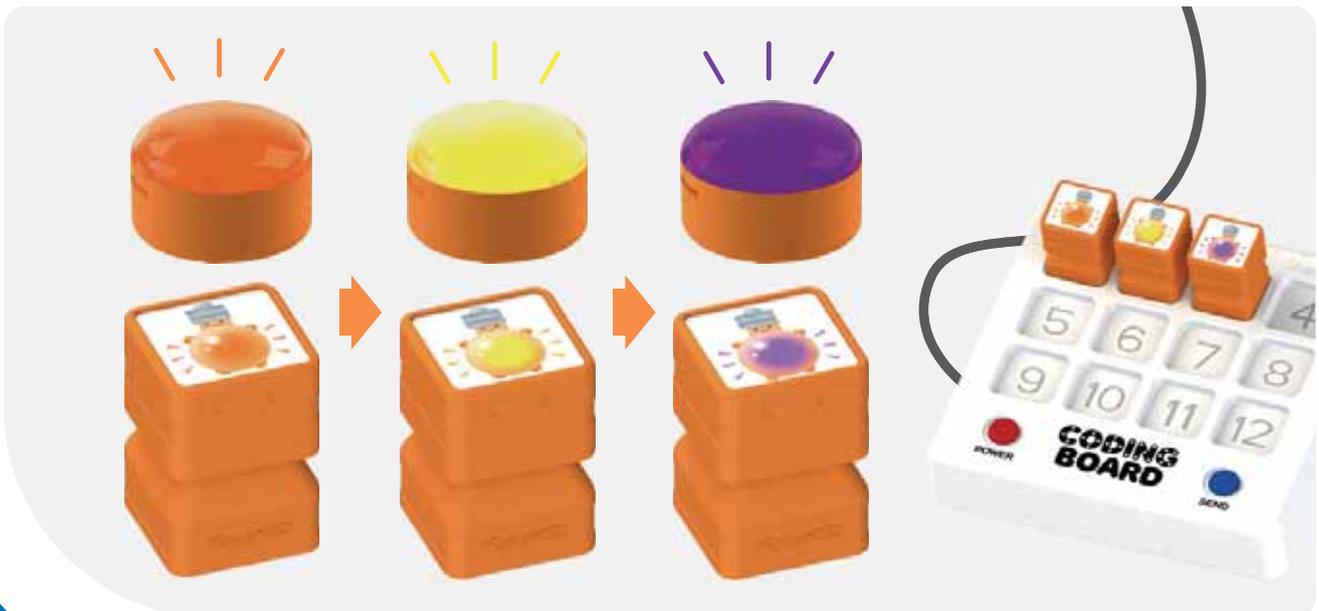
PLAY CODING



Follow the order below and turn Dino's blue light on. Code the LED block as in the picture below. Put it on the board and download it.



Follow the order below and turn Dino's orange light on. Code the LED block as in the picture below. Put it on the board and download it.





Put your hand toward the infrared sensor and try to move forward. Put the infrared sensor block and the forward block on the coding board and download.



Code Dino as described below.



02

MAKE PUPPY!



1 PARTS



×1



×1



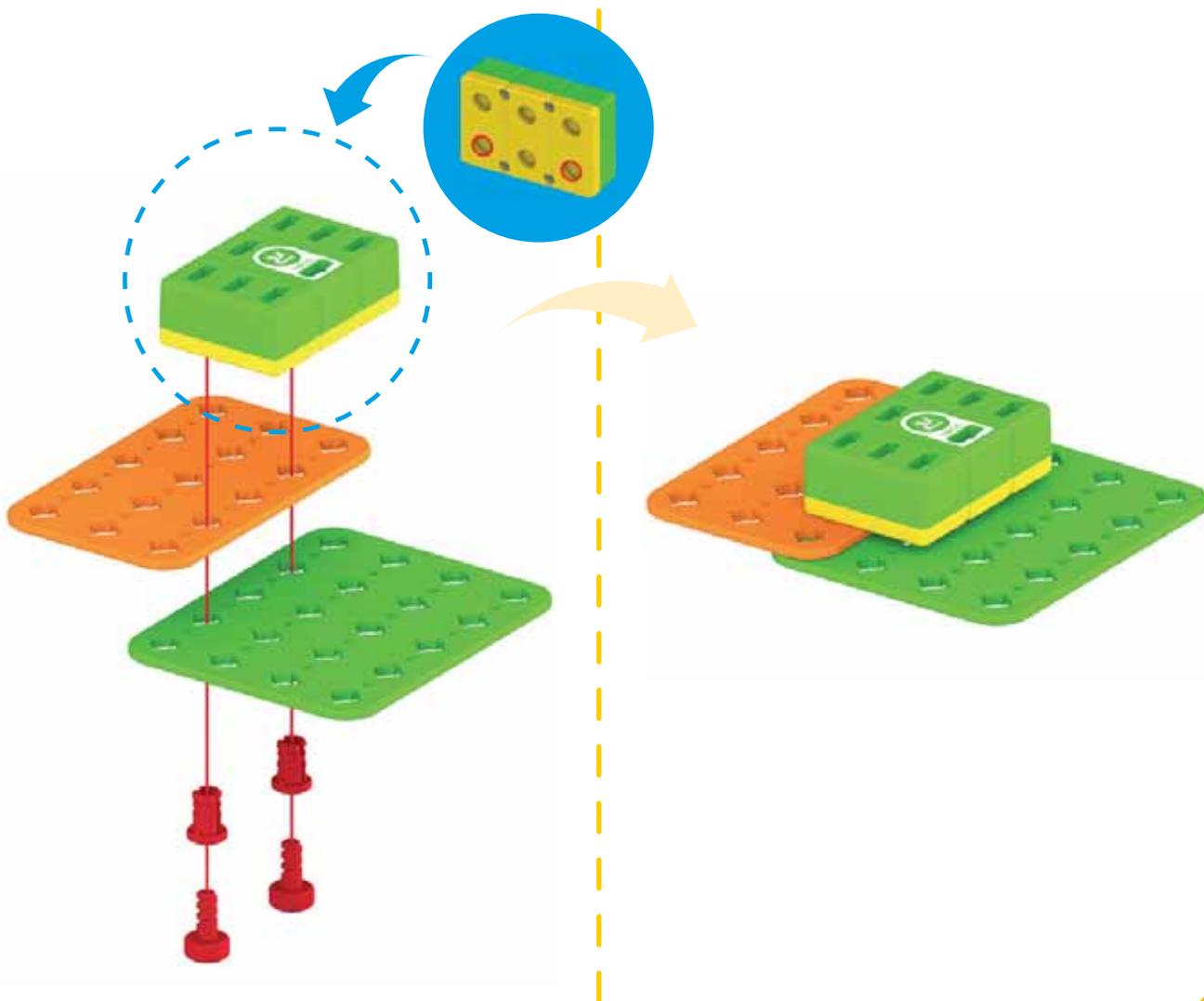
×1



×2



×2



MAKE PUPPY 🐶

2 PARTS



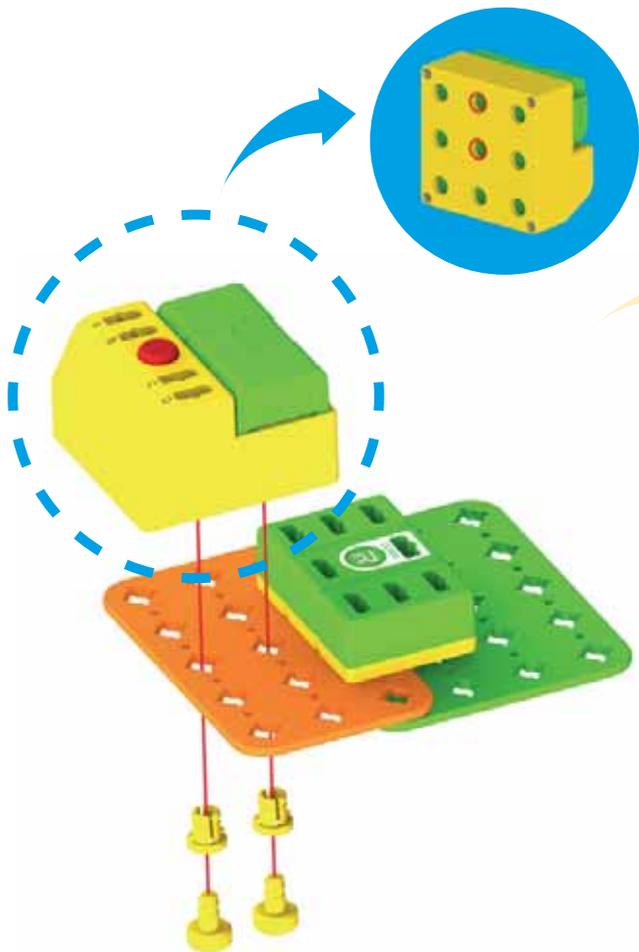
×1



×2



×2



3 PARTS



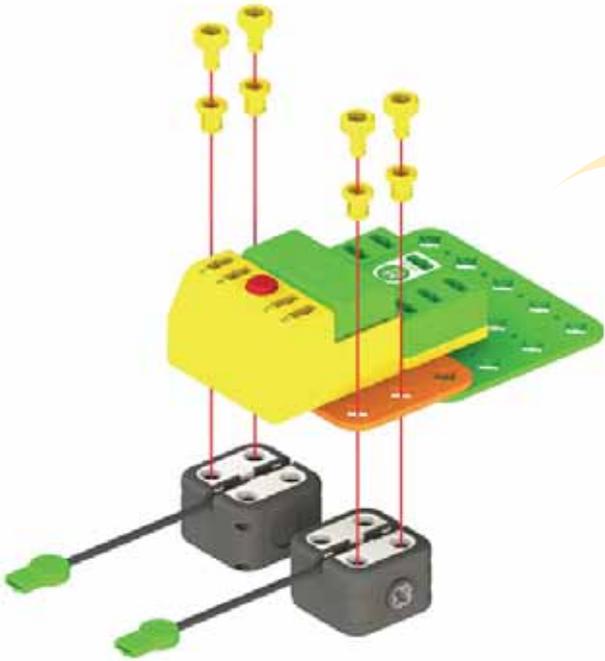
×2



×4



×4



MAKE PUPPY 🐶

4 PARTS



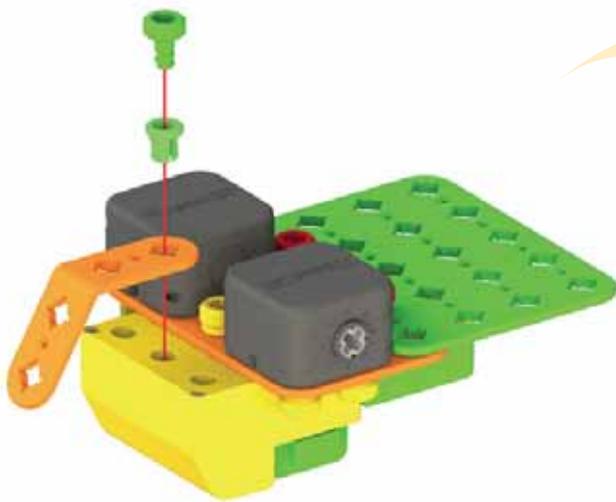
×1



×1



×1



5 PARTS



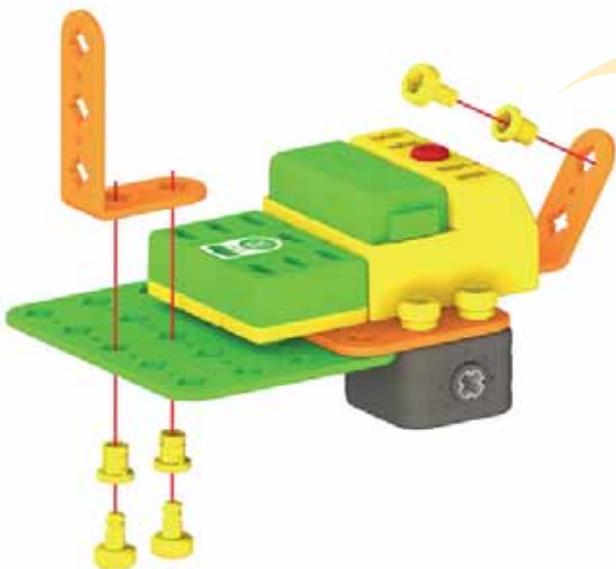
x1



x3



x3



MAKE PUPPY 🐶

6 PARTS



×2



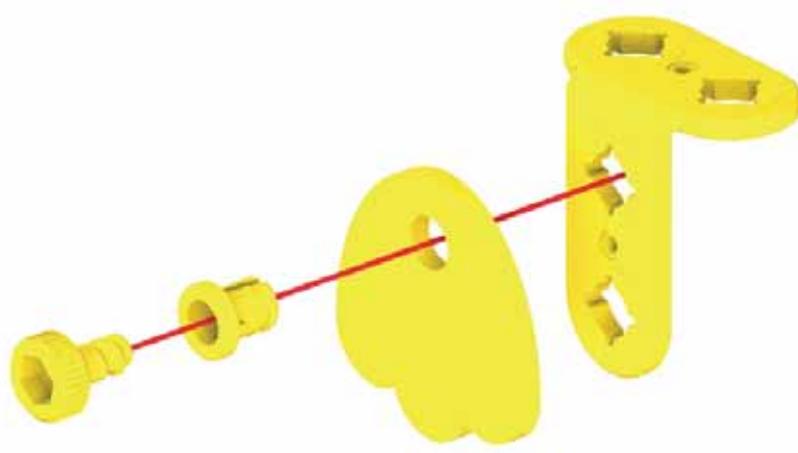
×2



×2



×2



**Make two
in the
same way**

7 PARTS



x4



x4



MAKE PUPPY 🐶

8 PARTS



×1



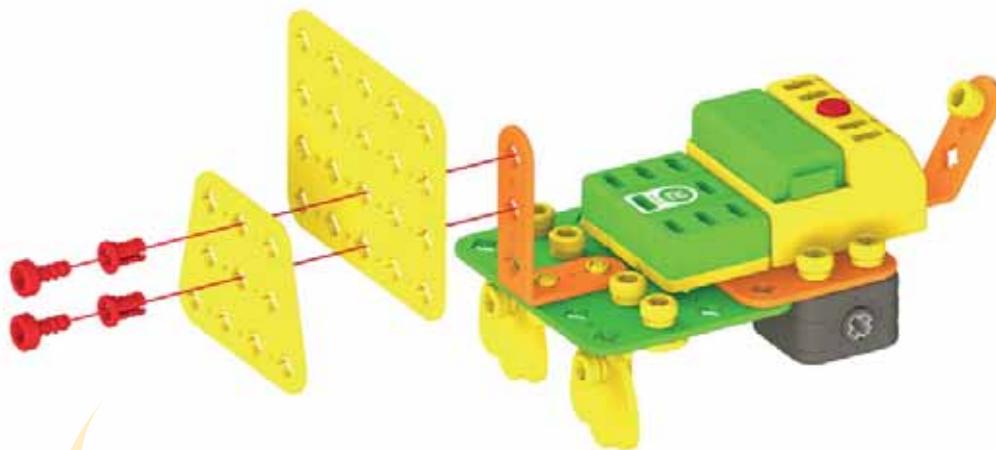
×1



×2



×2



9 PARTS



×2



×2



×2



MAKE PUPPY 🐶

10 PARTS



x2



x2



11 PARTS



x2



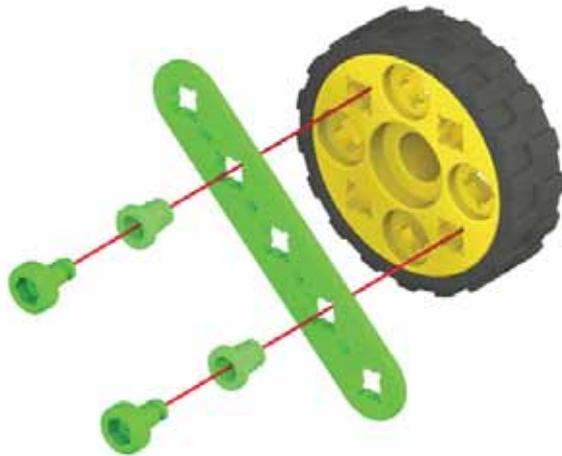
x2



x4



x4



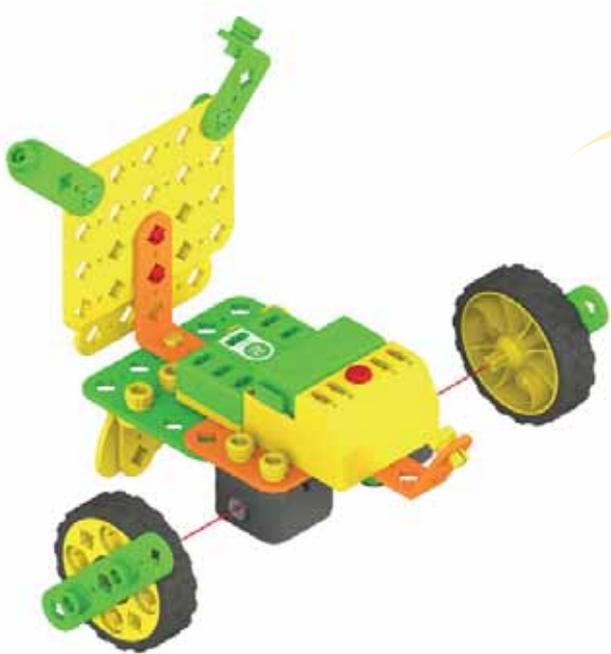
**Make two
in the
same way**

MAKE PUPPY 🐶

12 PARTS



×2



13 PARTS



×1



MAKE PUPPY 🐶

14 PARTS



×1



×1



15 PARTS



MAKE PUPPY 🐶

**DOUBLE SIDED
CABLE**

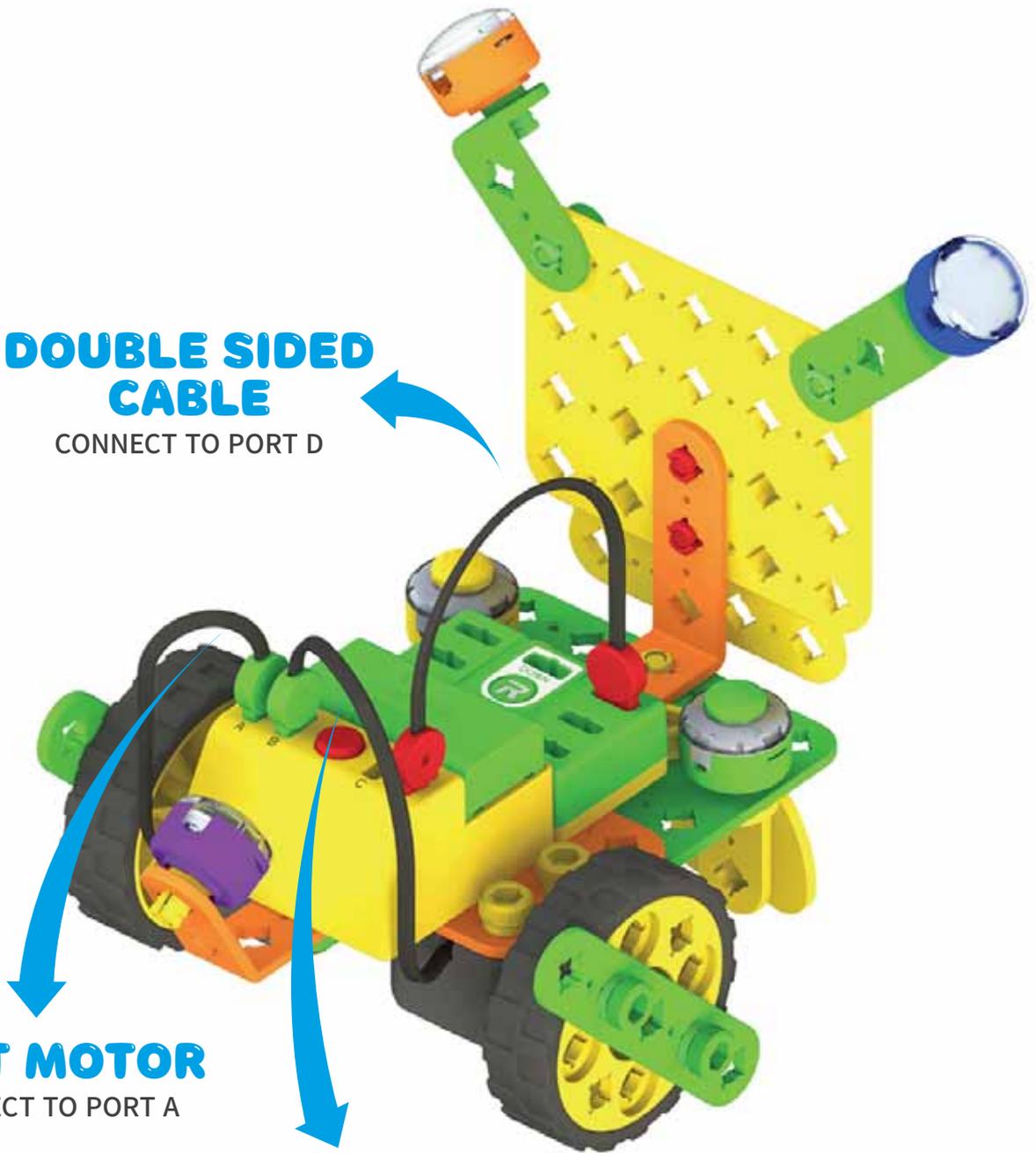
CONNECT TO PORT D

LEFT MOTOR

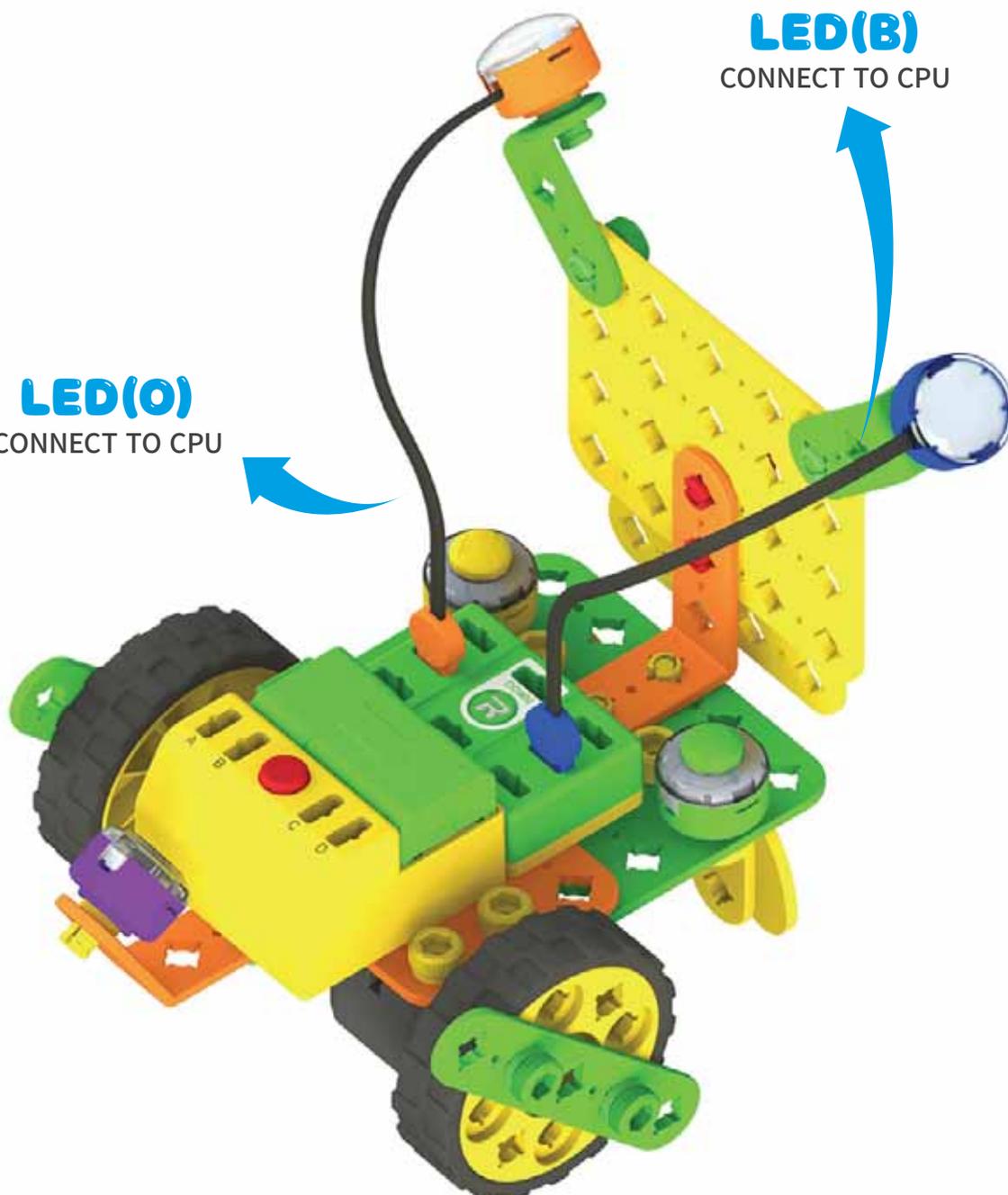
CONNECT TO PORT A

RIGHT MOTOR

CONNECT TO PORT B



LED(O)
CONNECT TO CPU



LED(B)
CONNECT TO CPU

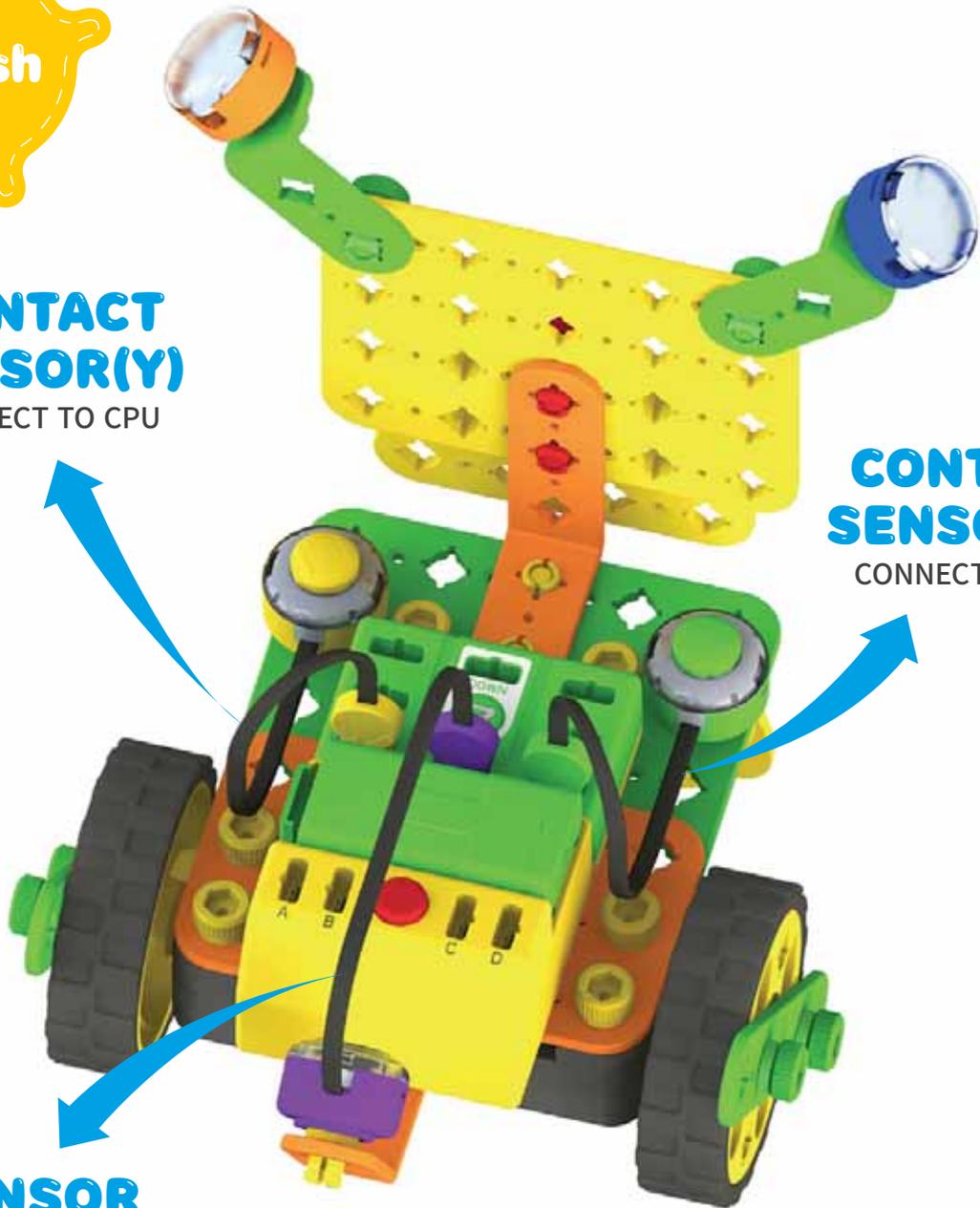
MAKE PUPPY 🐶



**CONTACT
SENSOR(Y)**
CONNECT TO CPU

**CONTACT
SENSOR(G)**
CONNECT TO CPU

IR SENSOR
CONNECT TO CPU



Play Coding

Connect Dino to the coding board to code it.

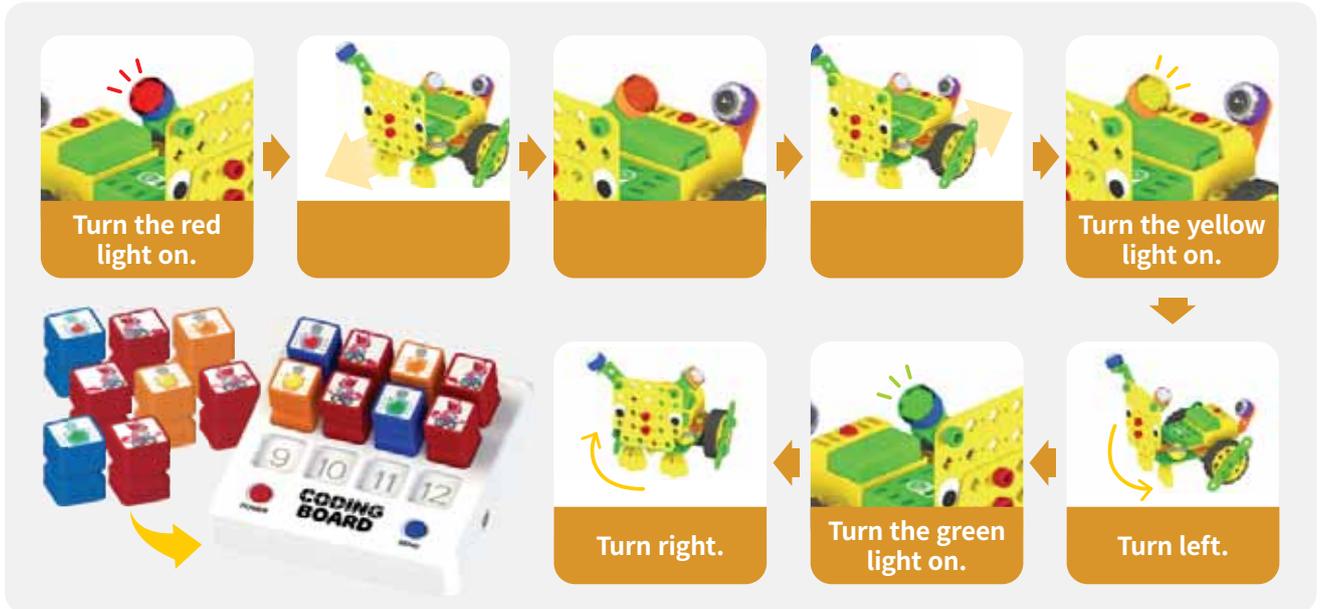


- 1 If you want to use the coding board, connect it with the robot by the cable. (Use the DOWNLOAD port of the CPU)
- 2 Turn the robot on.
- 3 Turn the coding board on.
- 4 Put a coding block on the coding board.
- 5 Press the blue button on the coding board.
- 6 Separate the coding cable.
- 7 You have successfully downloaded the program through the robot!

PLAY CODING



Make Puppy turn the LED lights on and move afterward. Put the coding block on the coding board as shown below, and then download.



Turn the red light on.

Turn right.

Turn the green light on.

Turn left.

Turn the yellow light on.

Turn right.

Turn the green light on.

Turn left.



If Puppy puts its hand on the infrared sensor board, rush forward with it.





Code Puppy so that it follows the directions below.

1. Press the yellow contact sensor.
2. Turn the lights starting from red, blue, and green.
3. Press the green contact sensor.
4. Turn the lights starting from orange, yellow, and purple.



Code Puppy so that it follows the directions below.



1. If you press the yellow contact sensor, it turns the green light on.
2. If you press the green contact sensor, it turns the purple light on.
3. If it touches the infrared sensor, move forward.

03

MAKE HELI!



1 PARTS



x2



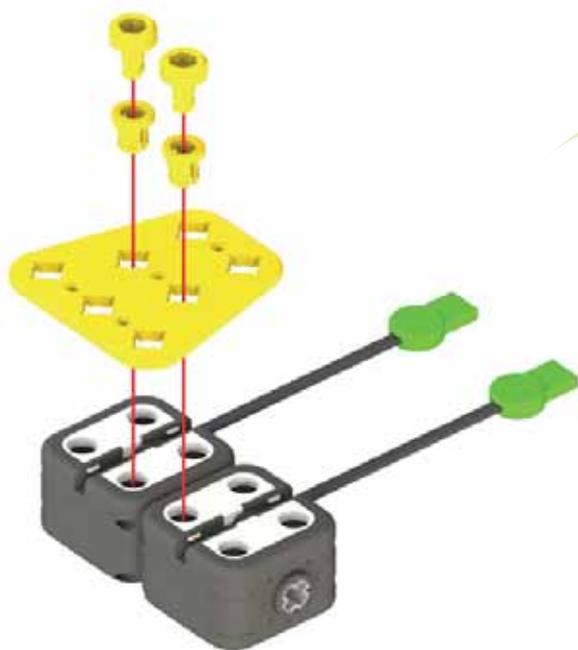
x1



x2



x2



MAKE HELI

2 PARTS



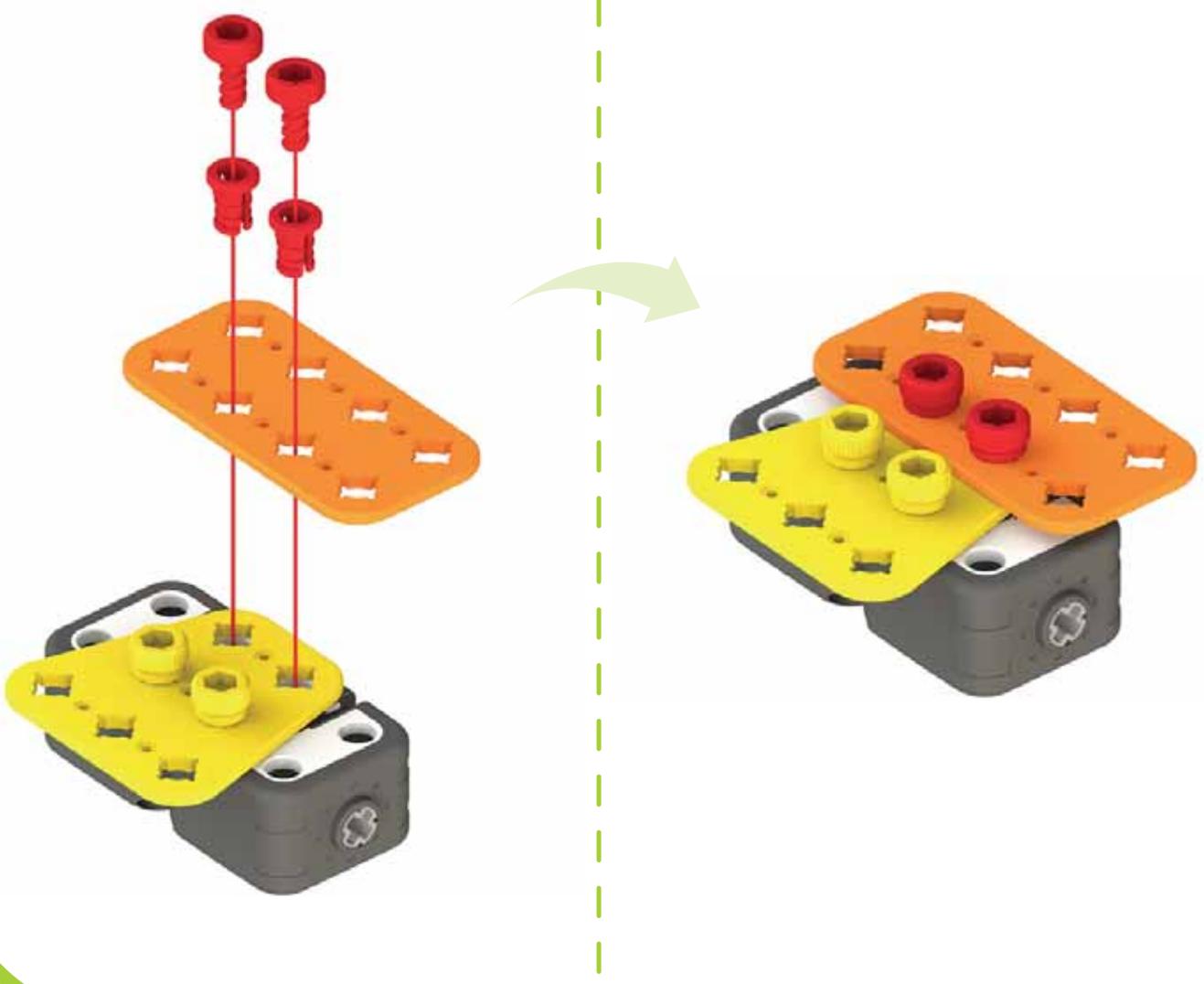
x1



x2



x2



3

PARTS



x1



x1



x2



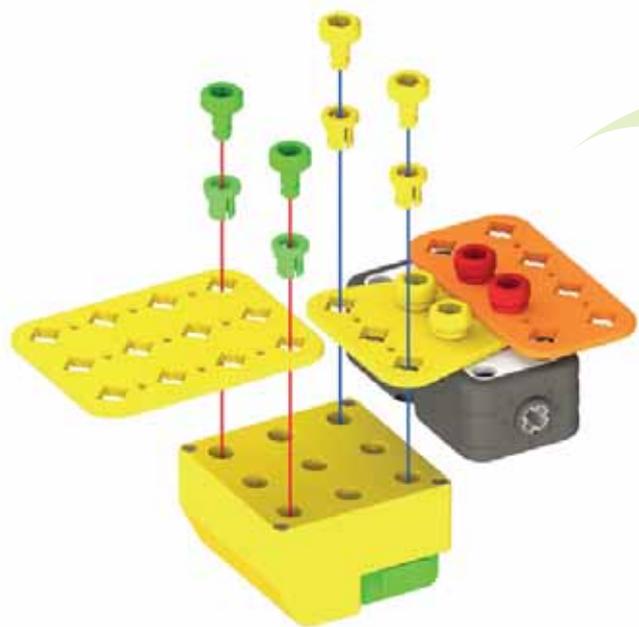
x2



x2



x2



MAKE HELI

4 PARTS



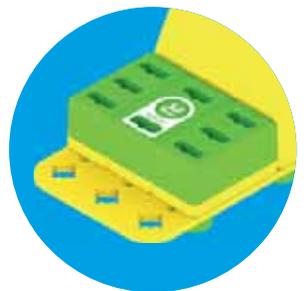
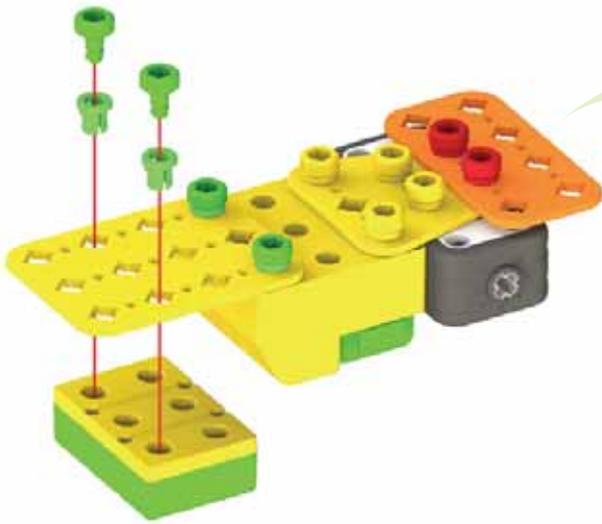
×1



×2



×2



5 PARTS



x1



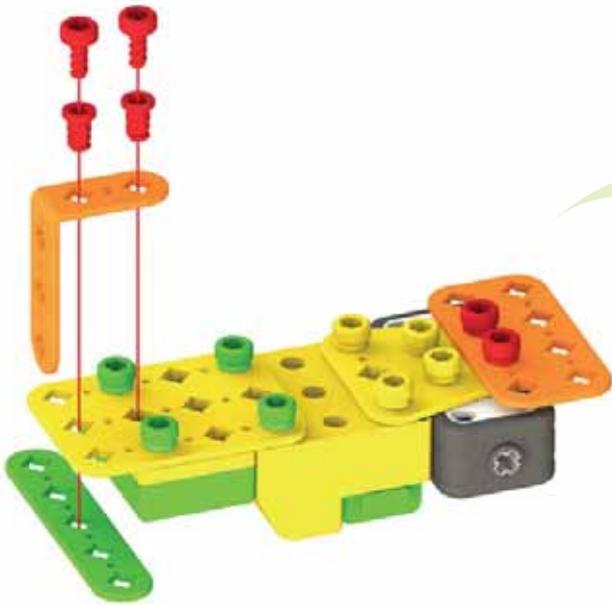
x1



x2



x2



MAKE HELI

6 PARTS



x2



x2



7 PARTS



×1



×2



×2



×1



×1



×2



MAKE HELI

8 PARTS



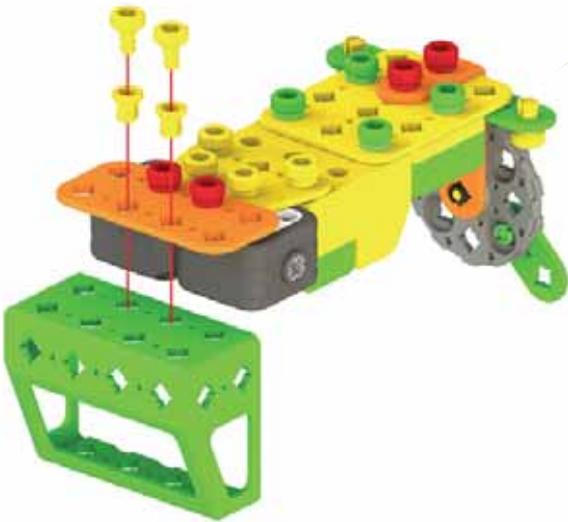
×1



×2



×2





PARTS



×1



×1



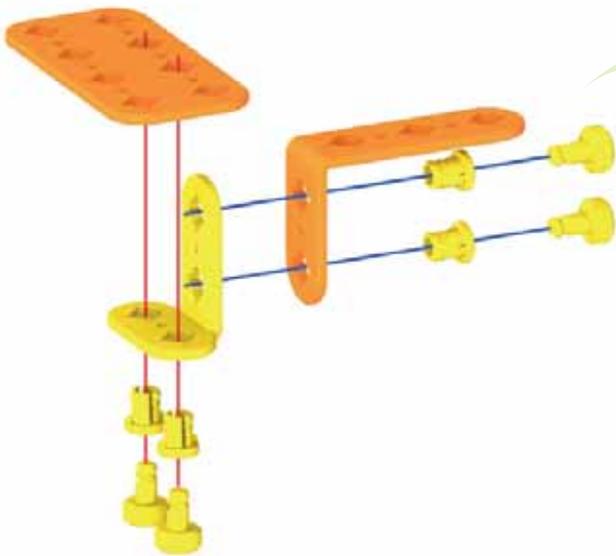
×1



×4



×4



MAKE HELI

10 PARTS



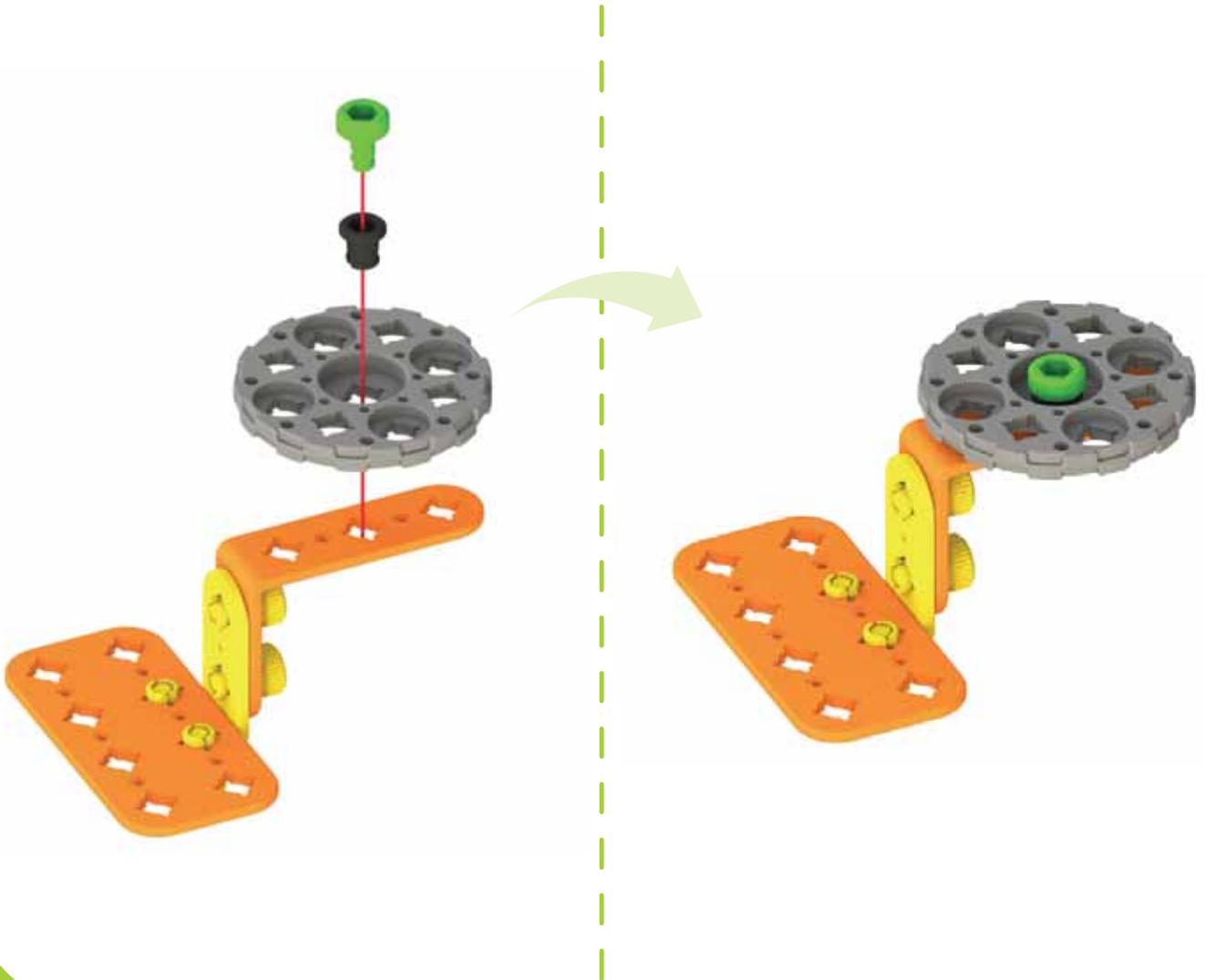
×1



×1

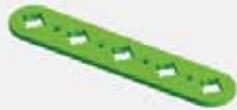


×1



11

PARTS



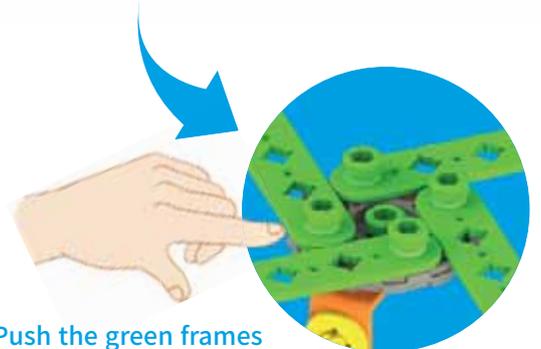
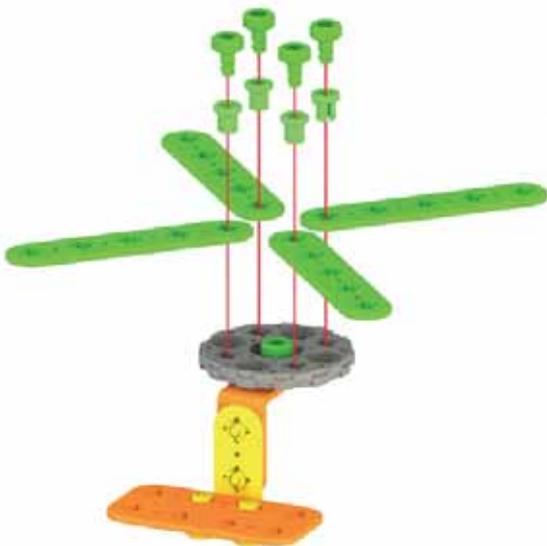
×4



×4



×4



Push the green frames to set like the picture above.

MAKE HELI

12 PARTS



x2



x2



x2



13 PARTS



×1



×1



MAKE HELI

14 PARTS



×1



×1



15 PARTS



×1



MAKE HELI

DOUBLE SIDED CABLE

CONNECT TO PORT D

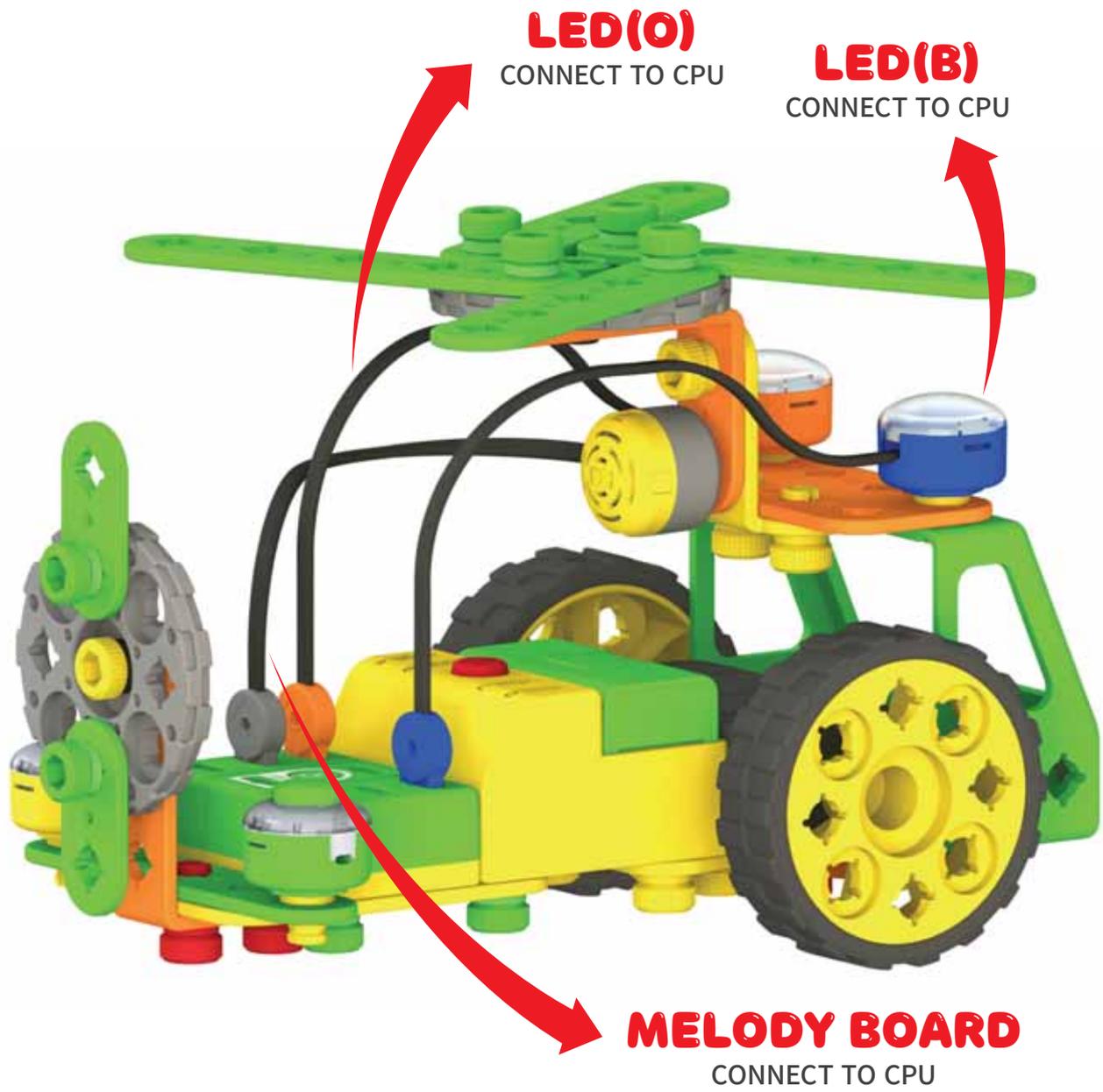


LEFT MOTOR

CONNECT TO PORT A

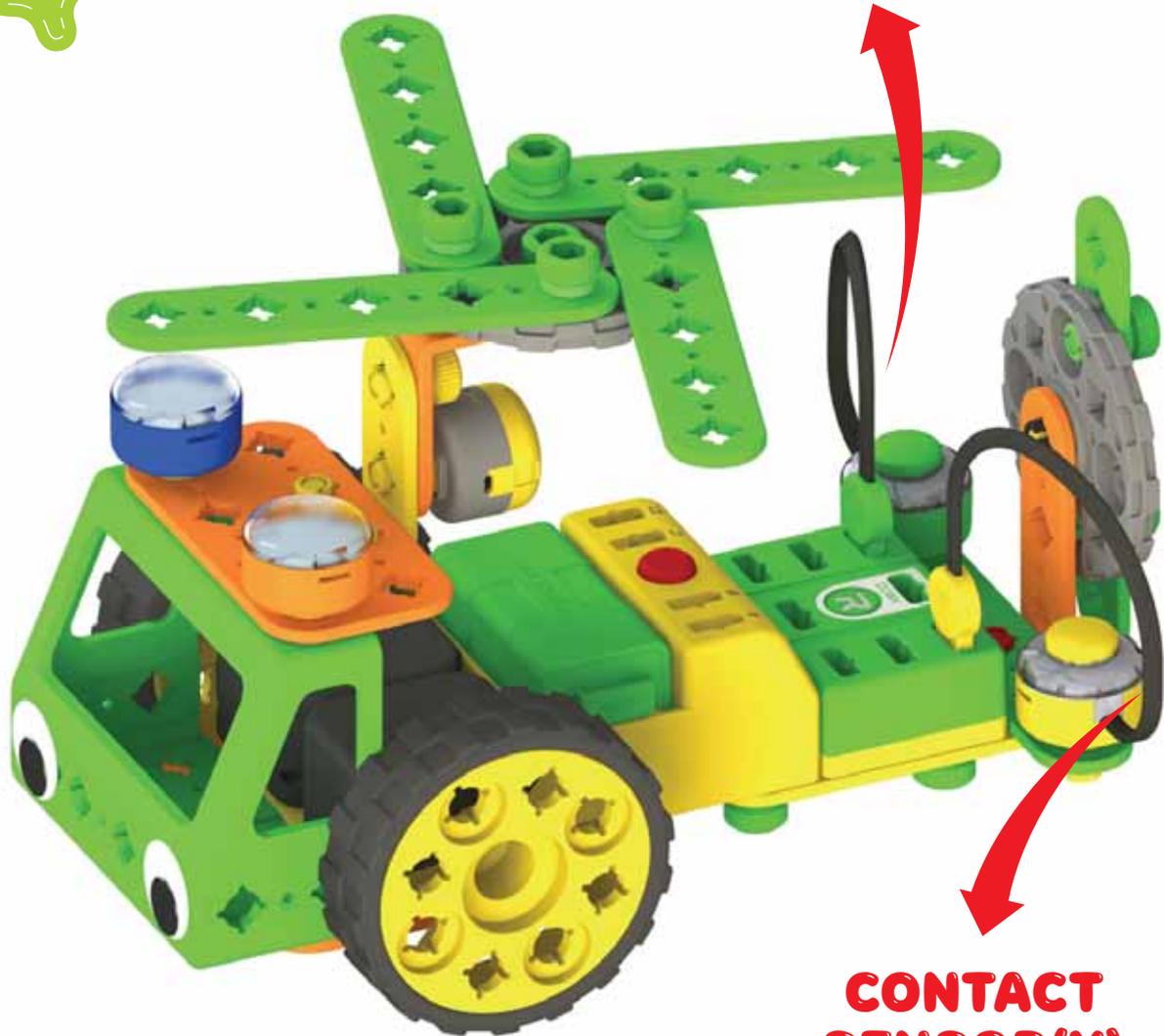
RIGHT MOTOR

CONNECT TO PORT B



MAKE HELI

Finish

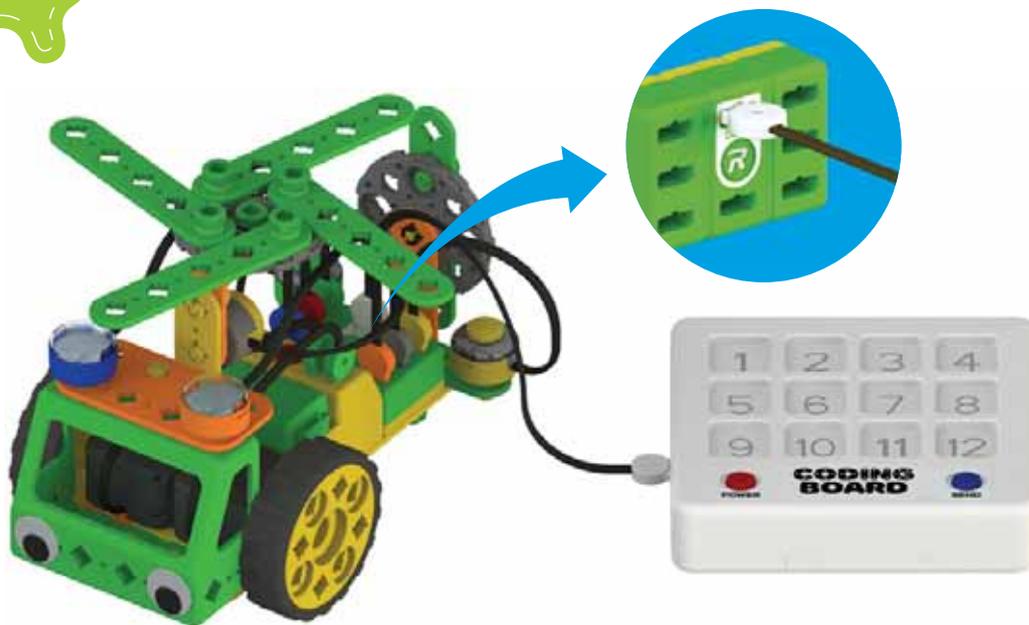


**CONTACT
SENSOR(G)**
CONNECT TO CPU

**CONTACT
SENSOR(Y)**
CONNECT TO CPU

Play Coding

Connect Dino to the coding board to code it.



- 1** If you want to use the coding board, connect it with the robot by the cable. (Use the DOWNLOAD port of the CPU)
- 2** Turn the robot on.
- 3** Turn the coding board on.
- 4** Put a coding block on the coding board.
- 5** Press the blue button on the coding board.
- 6** Separate the coding cable.
- 7** You have successfully downloaded the program through the robot!

PLAY CODING



Move Heli forward, and then backward. Follow the picture below. Put the forward block and backward block on the coding board, and then download.



Download the melody block and play songs. Write down the Melody Title in the blanks.



 		Honk Honk Song
 		Robot Song
 		Dance Song
 		911 Song
 		Animal Song



Heli moved forward after lighting the LED.
Download by using the right coding block.



If you press the yellow contact sensor, move forward after turning the red light on. If you press the green contact sensor, move backward after turning the purple light on.



CPU Program by LED color

Each color has its own program to move a robot.



If the LED display color on the CPU board changes, the robot also moves differently. For example, if you set the LED display color as red, the robot moves in a zigzag pattern. Even if you don't download the program through the coding board, it is already saved in the CPU board.

If you prepare the program through the coding board yourself, you have to set the LED display color to white.



RED

The robot moves in a funny zigzag way.



BLUE

If you press the green or yellow contact sensor, it dances merrily.



ORANGE

If you press the green contact sensor, the motor rotates slowly. If you press the yellow contact sensor, the motor rotates quickly.



PURPLE

If you press the green contact sensor, the motor rotates counterclockwise. Meanwhile, if you press the yellow contact sensor, the motor turns clockwise.



YELLOW

You can control it with the wireless remote control.



GREEN

If you press the green contact sensor, the motor rotates counterclockwise. Meanwhile, if you press the yellow contact sensor, the motor turns clockwise.



WHITE

Use yellow when connecting it with the coding board to code the program.

Q&A



Q I turned it on, but the robot does not move.

A You have to use the coding board to download the program. Then, Home Coding Robot will move. Please download the program first.

Q I pressed the blue button on the coding board, but the robot does not move.

A Please check if the cable has been disconnected from the coding board and Robot CPU. If so, please press the contact sensor (yellow or green) connected to the robot to make it move.

Q Do I have to put the coding block starting from number one on the coding board?

A You can start wherever you like. It downloads beginning with the number you put the coding block first.

Q I pressed the blue button on the coding board, but the program does not download. (The coding board beeps three times if download fails.)

- A**
1. Check if the battery case assembled on the robot is on. You can download it after the robot battery case supplies power to the CPU only.
 2. Please check if the coding cable is connected to the white port on the CPU.
 3. Please check if the LED display (where the R-shaped light opens) is set to white.

Q The motor keeps rotating as soon as I turn power on.

A Do you see the D port and CPU board of the battery case with the power button? Check if they are connected to the cable on both sides. If it is disconnected, please connect the cable with the battery case's D port and CPU board on both sides but not the white port on the CPU board.

Q Do I have to download the program through the coding board every time to move the robot?

A Buildy Bots Robot remembers the latest downloaded program. If you want it to move in the same way, press the contact sensor connected to the robot (yellow or green).

How to use the wireless remote control(1)



-  Move Forward
-  Move Left
-  Move Backward
-  Move Right
-  Run LED
-  Run the Melody Board

How to Move the Motor by Wireless remote control

- To use the wireless remote control, you must connect the remote control reception board and complete its pairing.

Read page 06 to learn more about pairing Wireless Remote Control.

- Connect two motors to the battery case as above. Connect the CPU board to the remote control reception board. Then you can move forward, backward, left, or right with the wireless remote control.
- It does not matter whether you have connected or disconnected the LED, melody board, contact sensor, or infrared sensor with the CPU board. It will run anyway.
- The same is true for both Dino and Buildy Bots Home Coding Robot.

How to Move the Motor, LED, Melody Board by Wireless remote control

- To use the wireless remote control, you must connect the remote control reception board and complete its pairing.

Read page 06 to learn more about pairing Wireless Remote Control.

- Connect two motors to the battery case as above. Connect the CPU board to the remote control reception board. Then you can move forward, backward, left, or right with the wireless remote control.
- It does not matter whether you have connected or disconnected the LED, melody board, contact sensor, or infrared sensor with the CPU board. It will run anyway.
- The same is true for both Dino and Buildy Bots Home Coding Robot.

How to use the wireless remote control(2)



How to connect cables to use a remote, a motor, LED and Melody board



LED(B)
CONNECT TO CPU

RECEIVER BOARD
CONNECT TO CPU

DOUBLE SIDED CABLE
CONNECT CPU to PORT

MELODY BOARD
CONNECT TO CPU



LED(O)
CONNECT TO CPU

RIGHT MOTOR
CONNECT TO PORT B

LEFT MOTOR
CONNECT TO PORT A



LED(O)
CONNECT TO CPU

LEFT MOTOR
CONNECT TO PORT A

MELODY BOARD
CONNECT TO CPU



LED(B)
CONNECT TO CPU

DOUBLE SIDED CABLE
CONNECT CPU to PORT

RECEIVER BOARD
CONNECT TO CPU

RIGHT MOTOR
CONNECT TO PORT B



LED(O)
CONNECT TO CPU

LEFT MOTOR
CONNECT TO PORT A

MELODY BOARD
CONNECT TO CPU



LED(B)
CONNECT TO CPU

DOUBLE SIDED CABLE
CONNECT CPU to PORT

RIGHT MOTOR
CONNECT TO PORT B

RECEIVER BOARD
CONNECT TO CPU

Block Frame



By using the Block Frames, you can decorate your robots with blocks.



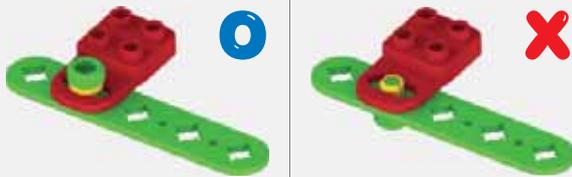
4 Block Frame



8 Block Frame

Follow the description below to use Block Frame.

To assemble the Block Frame UPWARD



To assemble the Block Frame DOWNWARD



1 How to fix the Block Frame

When assembling a Block Frame, place a nut in the hole of the Block Frame .

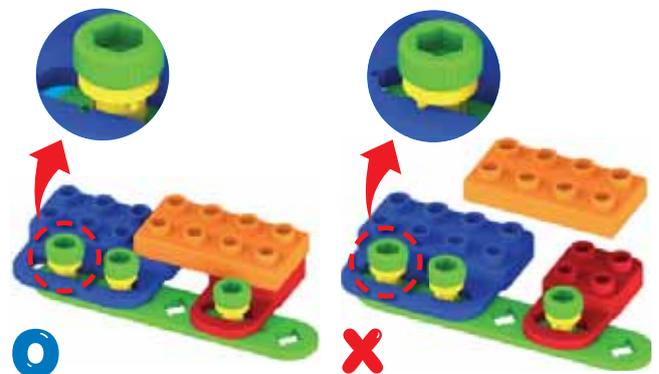
(This will prevent the Block Frame from moving)



2 How to make a Block Frame adjustable

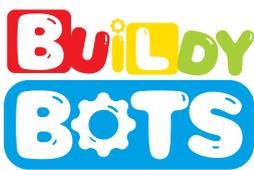
When assembling a block to the Block Frames, don't place a nut in the hole of the Block Frame .

(You can adjust a Block Frame to your desired position by sliding it)



Safety Precaution

01. Do not put any parts in your mouth.
02. Do not operate, bend, or remove any parts forcibly.
03. Do not put your hand or fingers into any moving parts.
04. Do not throw or swing components or products at people.
05. Be careful when touching sharp edges of the parts.
06. Keep all parts away from fire.
07. Electronic components may not operate if exposed to water.
08. Insert battery correctly by (+), (-).
09. Do not heat or disassemble battery.
10. Do not mix the different types of battery.
11. If the battery fluid gets into your eyes, flush them with clean water immediately and contact your doctor.
12. If the battery fluid gets on your skin or clothes, wash them thoroughly with clean water and soap.
If skin becomes inflamed, see a doctor.
13. Please assemble under teacher or parents guidance / supervision.
14. Operating temperature : 0°C ~ 45°C
15. **Choking Hazard : Kits contain small parts and are not suitable for children under 3 years.**



Interactive Coding World

First Edition : August 2021

Author : Jungmi Park, Hanhyuk Jung, Youngsuk Choi

Publisher : Roborobo Co., Ltd

Homepage : <https://eng.robوروbo.co.kr>

Copyright © Roborobo Co., Ltd. All rights reserved.

※ Printed in the Republic of Korea. This publication is protected by copyright, and permission must be obtained from the publisher prior to any prohibited reproduction, storage in a retrieval system, or transmission in any form or by any means, electronic, mechanical, photocopying, recording, or likewise.

**BUILDY
BOTS**

값 11,000원



ISBN 979-11-89878-57-3

General Specifications	
Model Name	BUILDY BOTS ULTIMATE KIT
Material	ABS,PC (PLASTIC)
Frequency	8-bit MCU 16MHz, CPU frequency: 16MHz
Max Current	1A
Voltage	DC 6V
Manufacturer	ROBOROBO Co., Ltd
Address	6, Dobong-ro 54-gil, Gangbuk-gu, Seoul, Republic of Korea

Product Specifications		
Model Name	Picture	Specification
CPU		Material: ABS (PLASTIC) Size: 73(L)x50(W)x25(H)mm Weight: 53g In/out port: 7 CPU frequency: 16MHz
Motor		Material: ABS,PC (PLASTIC) Voltage: DC 6V Size: 50(L)x30(W)x54(H)mm / 250mm (cable) Weight: 50g RPM/Torque: 140 RPM / 3.0kg
Remote Control		Material: ABS (PLASTIC) Voltage: DC 3V (1.5V AAA Battery x 2) Size: 88(L)x92.5(W)x27(H)mm Weight: 57g
Battery Case		Material: ABS,PC (PLASTIC) Voltage: DC 6V (1.5V AA Battery x 4) Size: 75(L)x75(W)x49(H)mm / 250mm (cable) Weight: 74g
Battery Pack		Material: ABS (PLASTIC) Voltage: DC 6V (1.5V AA Battery x 4) Size: 72(L)x35(W)x34(H)mm Weight: 28g
Coding Board		Material: ABS (PLASTIC) Voltage: DC 6V (1.5V AA Battery x 4) Size: 170(L)x160(W)x40(H)mm Weight: 328g PORT: CODING PORT, USB PORT, BLUETOOTH MODULE PORT Circuit: 8-bit MCU / NFC IC 8-bit MCU frequency: 16MHz RFID frequency: 13.56MHz

FCC Compliance Statement

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

CAUTION: This equipment complies its antenna must not be co-located or operation in conjunction with any other antenna or transmitter.

Note: The ROBOROBO Co., Ltd is NOT Responsible for any changes od modifications not expresst approved by the party responsible for compliance. Such modifications could void the user's authority to operate the equipment.