Makeblock
Construct Your Dreams

Ultimate Robot Kit

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MAKER WORKS TECHNOLOGY INC
Technique support: support@makeblock.cc
www.makeblock.cc

:@Makeblock   : @Makeblock   : +Makeblock

Quick Guide

Please visit
http://learn.makeblock.cc/ultimate-robot-kit/
to view the build and programming guide.

Makeblock Ultimate Robot Kit can build as various styles,Robotic Arm Tank,Triangular Tank,Ball Launcher,Forklift etc.It is also a great tool to learn mBlock,Scratch and Arduino programming.
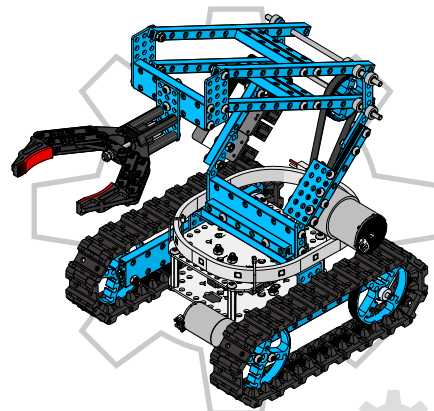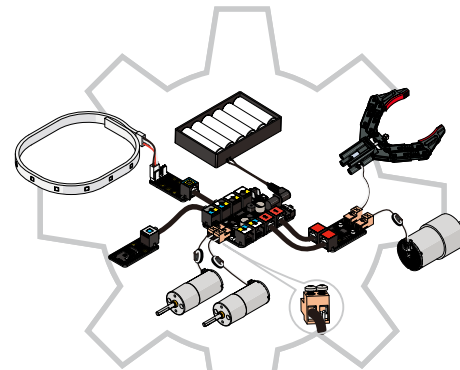

Parts List — 1

Check all components in parts list, please contact Makeblock or the distributor if any component lacked.
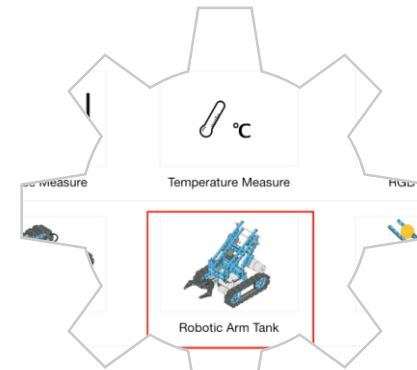

Build the Robotic Arm Tank — 3

Follow our manual to build the Robotic Arm Tank.

Wiring — 22

Do wiring. Install batteries for your robot .

Control with App — 23

Turn on the power of your robot, control your robot with App.Now it's time to play your robot!

Robot Ideas--Further exploration — 25

Try other styles:
Follow our guideline on website to build the other 9 robot styles.

Programming Guide--Further exploration — 26

Advanced player can re-program to the robot by mBlock or Arduino to explore the wonderful robotic world.

Parts List Pictures for reference only

2× Beam 0824-64	2× Bracket P3	2× Timing Belt Connector	31× Screw M4×8	16× Plastic Rivet R4060	1× Makeblock Orion
2× Beam 0824-80	1× Caster Wheel	4× Tire 68.5×22mm	42× Screw M4×14	12× Plastic Rivet R4120	1× Me Ultrasonic Sensor
3× Beam 0824-96	4× Plate 45°	40× Track	10× Screw M4×22	2× BaseBracket	1× Me Dual Motor Driver
2× Beam 0824-128	1× Disc D72	40× Track Axle	10× Screw M4×30	1× Battery Holder for (6) AA	1× Me Bluetooth Module
2× Beam 0824-144	2× DC Motor-25 Bracket	1× Timing Belt 98MXL	28× Nut M4	2× DC Motor-25	1× Me Line Follower
4× Beam 0808-88	1× DC Motor-37 Bracket	1× Timing Belt 240MXL	2× Nut M8	1× DC Motor-37	1× Me Sound Sensor
4× Beam 0808-184	3× Shaft Connector 4mm	6× Rubber Ring	30× Nylon Lock Nut M4	3× Terminal Block	1× Me RJ25 Adapter
4× Bracket 3×3	1× Timing Pulley 18T	2× D Shaft 4×56mm	10× Screw M3×8	3× Motor Cable	1× LED RGB Strip-Addressable
1× Bracket 3×6	2× Timing Pulley 62T	2× D Shaft 4×128mm	16× Headless Set Screw M3×5	3× Ferrite Ring	3× RJ25 Cable-20cm
4× Plate 3×6	4× Timing Pulley 90T	6× Threaded Shaft 4×39mm	6× Nylon Stud M4×30	2× Micro Switch	3× RJ25 Cable-35cm
1× Plate 7×9	2× Timing Pulley Slice 90T	10× Shaft Collar 4mm	1× Hex Screwdriver	2× Micro Switch Cable	1× Micro USB Cable
8× Link Rod	1× Gear 16	8× Flange Bearing 4×8×3mm	1× Cross Screwdriver	4× Tapping Screws-2×10	1× Robot Gripper
	1× Gear 80	4× Nylon Pulley with Bearing	1× Wrench	50× Plastic Ring 4×7×2mm	
		8× Bearing 4×8×3mm	1× Hex Allen Key 2.5mm	1× Micro Switch Bracket	
			2× Hex Allen Key 1.5mm		
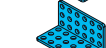
1   2

Build the Robotic Arm Tank
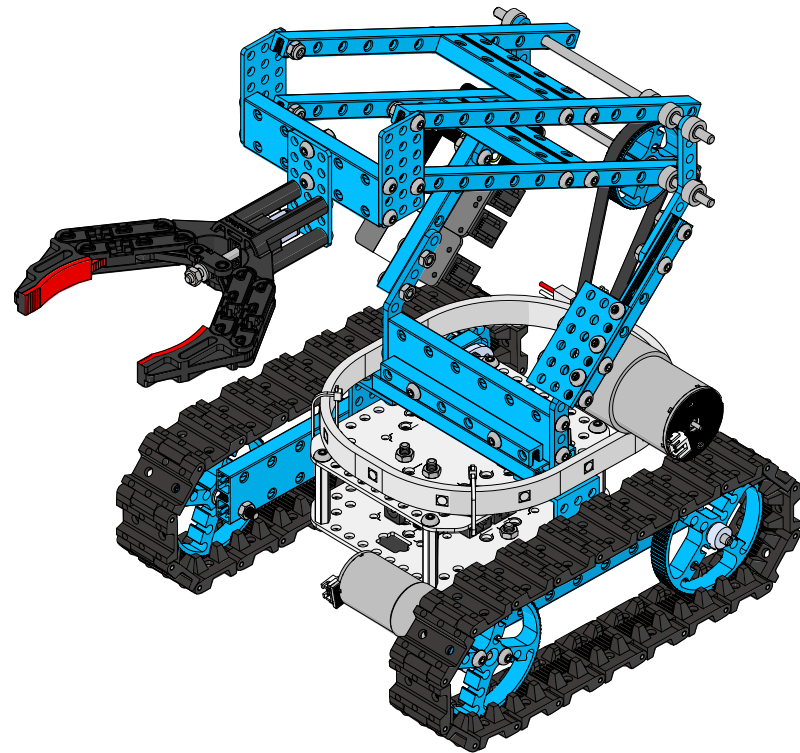
Part List for the Robotic Arm Tank

1× Timing Belt 98MXL		1×	DC Motor-37 Bracket	1× Timing Pulley 62T	
4× Beam 0808-184		2×	DC Motor-25 Bracket	4× Timing Pulley 90T	
4× Beam 0808-88		4×	Plate 45°	4× Nylon Stud	
2× Beam 0824-64		6×	Flange bearing 4×8×3mm	1× Battery Holder for (6)AA	
1× Beam 0824-80		21×	Nut 4mm	2× BaseBracket	
2× Beam 0824-96		4×	Nylon Lock Nut 4mm	1× Makeblock Orion	
2× Beam 0824-144		4×	Plastic Ring 4×7×2	1× Me RJ25 Adapter	
3× Plate 3×6		13×	HeadlessSetScrewM3x5	1× Me Dual Motor Driver	
2× Bracket 3×3		8×	Screw M3×8	1× Me Bluetooth Module	
1× Bracket 3×6		31×	Screw M4×8	1× LED RGB Strip-Addressable	
2× D Shaft 4×128mm		42×	Screw M4×14	2× RJ25 Cable-20cm	
2× DC Motor-25		1×	Screw M4×22	2× RJ25 Cable-35cm	
1× DC Motor-37		2×	Screw M4×30	1× Micro USB Cable	
3× Terminal Block		2×	Shaft Connector 4mm	1× Robot Gripper	
3× Motor Cable		10×	Shaft Collar 4mm		
3× Ferrite Ring		2×	Threaded Shaft 4×39		
		36×	Track		
		36×	Track Axle		
		1×	Timing Pulley 18T		
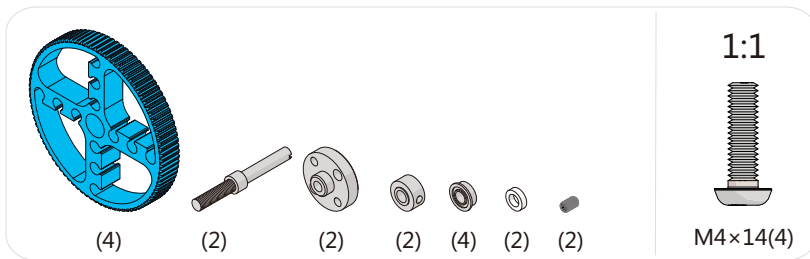
(4)　(2)　(2)　(2)　(4)　(2)　(2)　| 1:1

M4×14(4)

1

2× Screw M4×14

2

(2)　(2)　| 1:1

M3×8(4)

(2)　(2)　(2)　(2)　| 1:1

M4×14(4)

3

4

1:1

(2)   (2)   (2)   (2)   M4×14(4)   M4×30(2)

4× Screw M4×14

5

6

2× Screw M4×30

Threaded slot

7

1:1

(4)   M4×14(4)

1
2
3
4

8

(2)　(4)　(8)　M4×14(8)　M4×8(4)　1:1

2× Screw M4×8

4× Screw M4×14

9

(2)　(1)　(4)　(2)　(4)　M4×14(12)　M4×8(4)　1:1

12× Screw M4×14

4× Nylon Lock Nut M4

4× Screw M4×8

(1) (2) (8) (2) (8) (2) (1) (1)

1:1

M4×22(1)

10 **11**

Screw M4×22

1:1

(1)   (1)   (1)   (1)   (2)   (1)

M4×8(2)   M3×8(4)

1:1

M4×8(3)

12

Screw M3×8

13
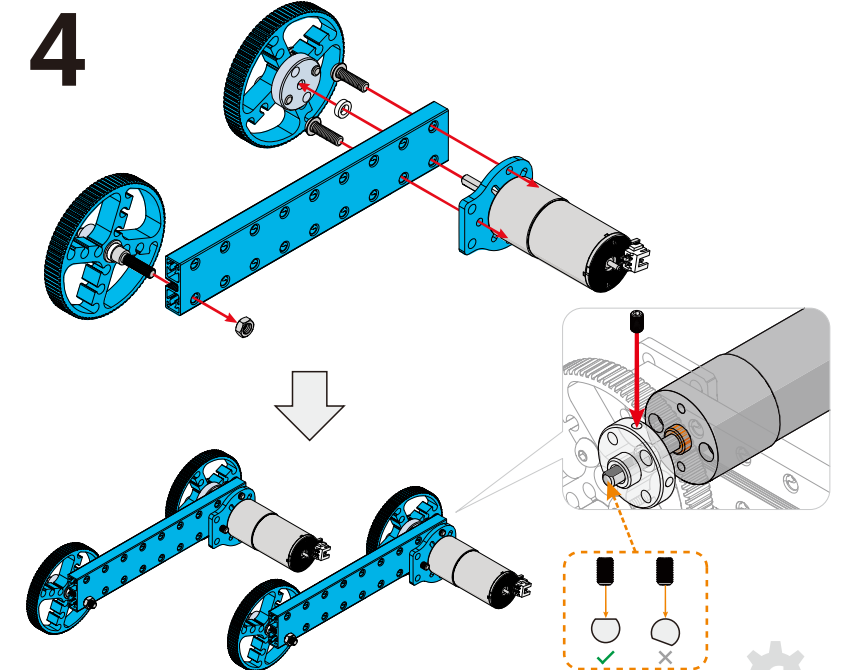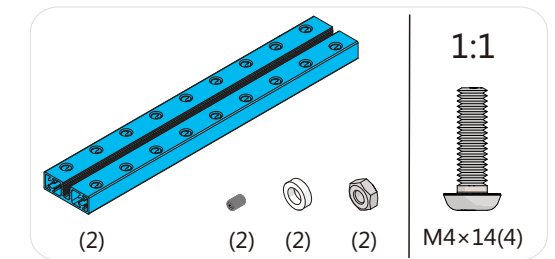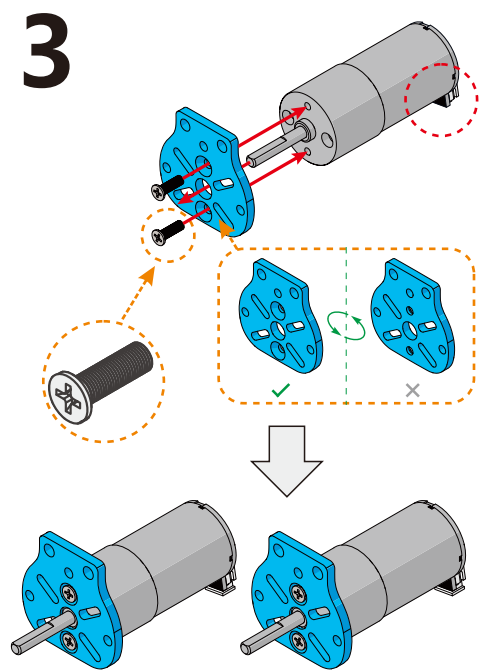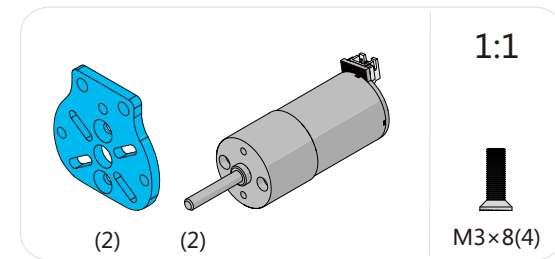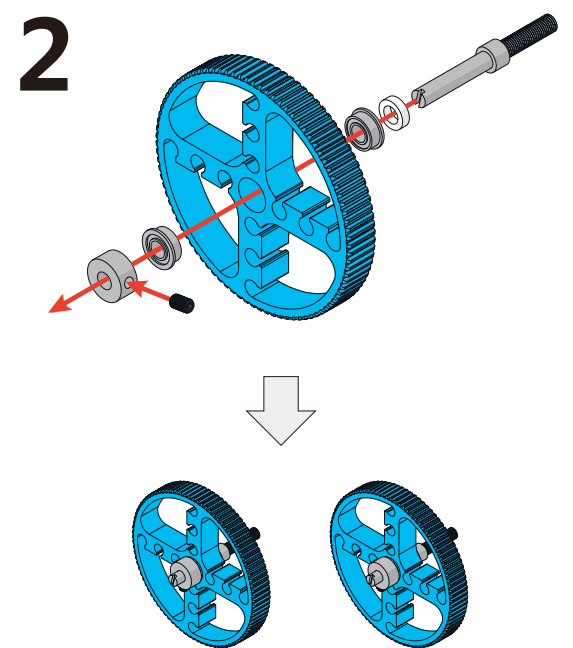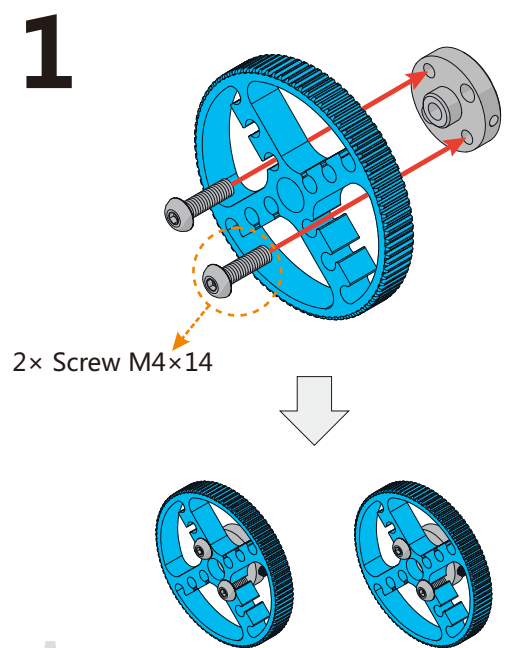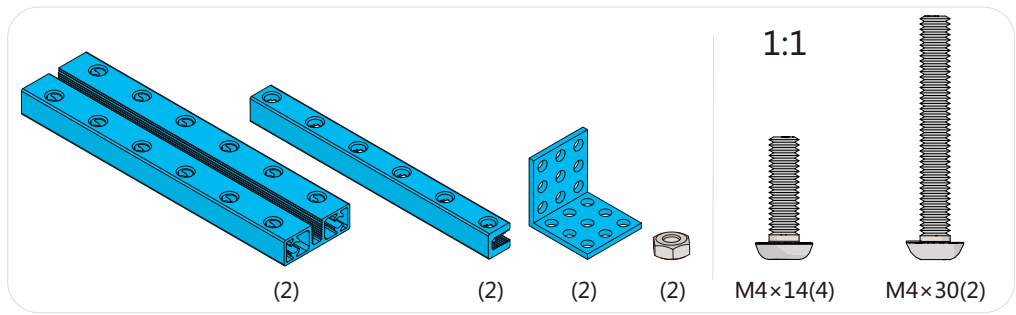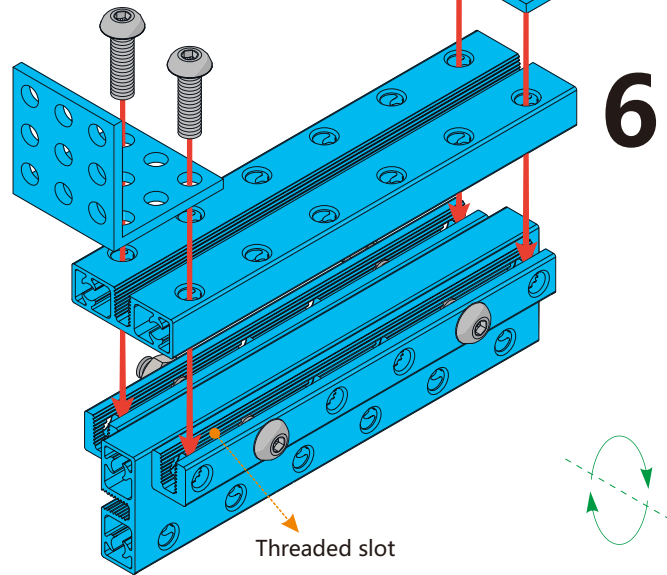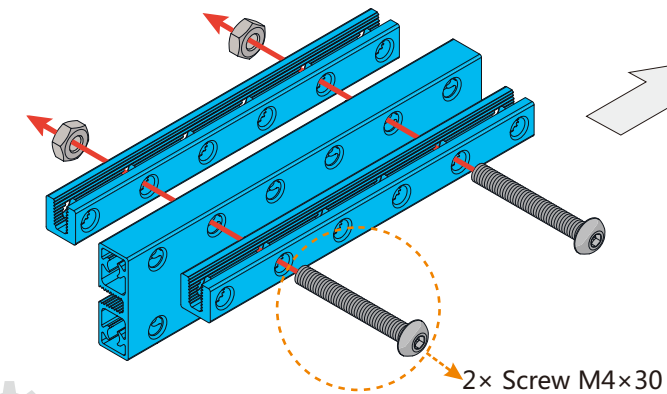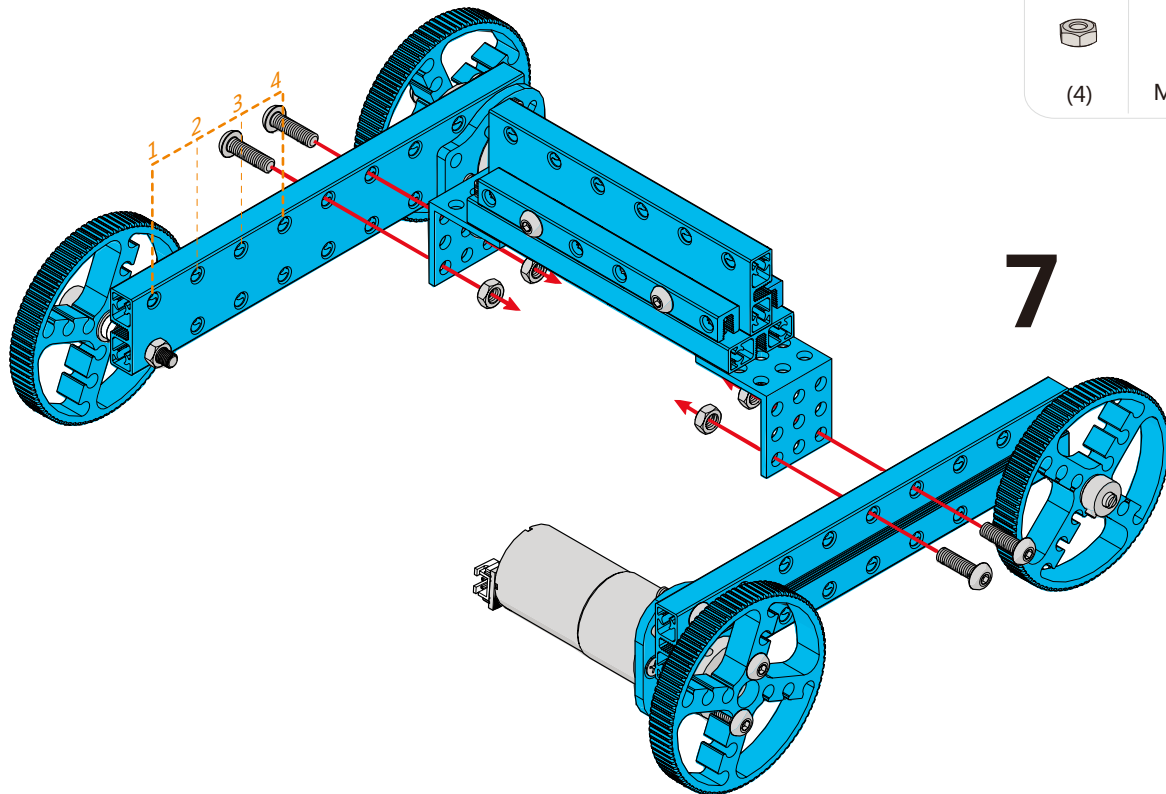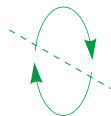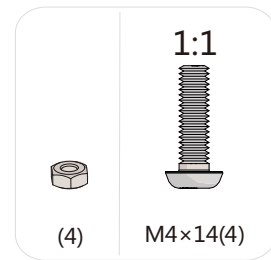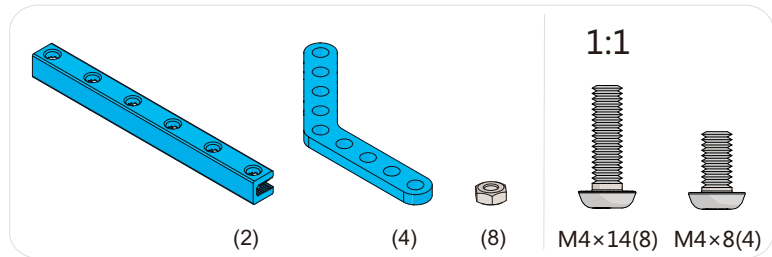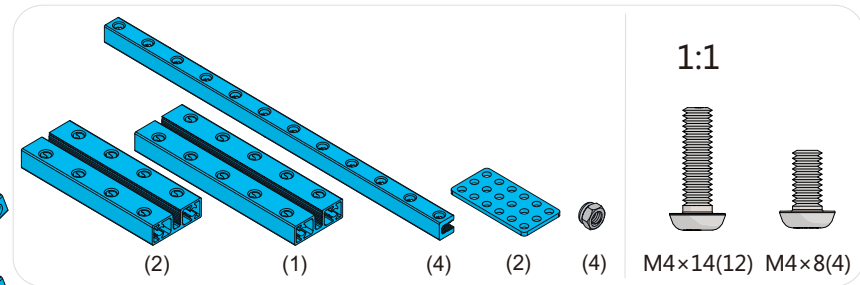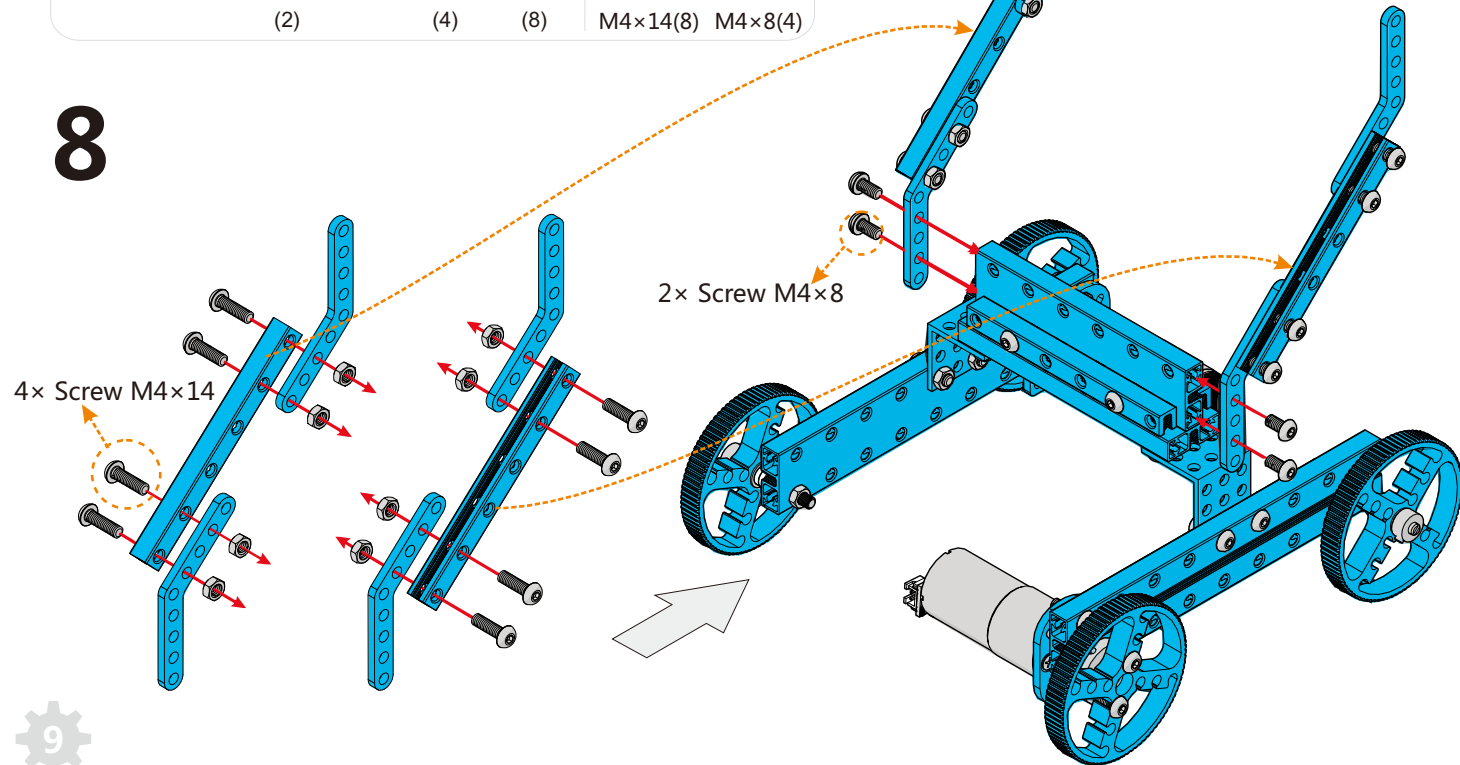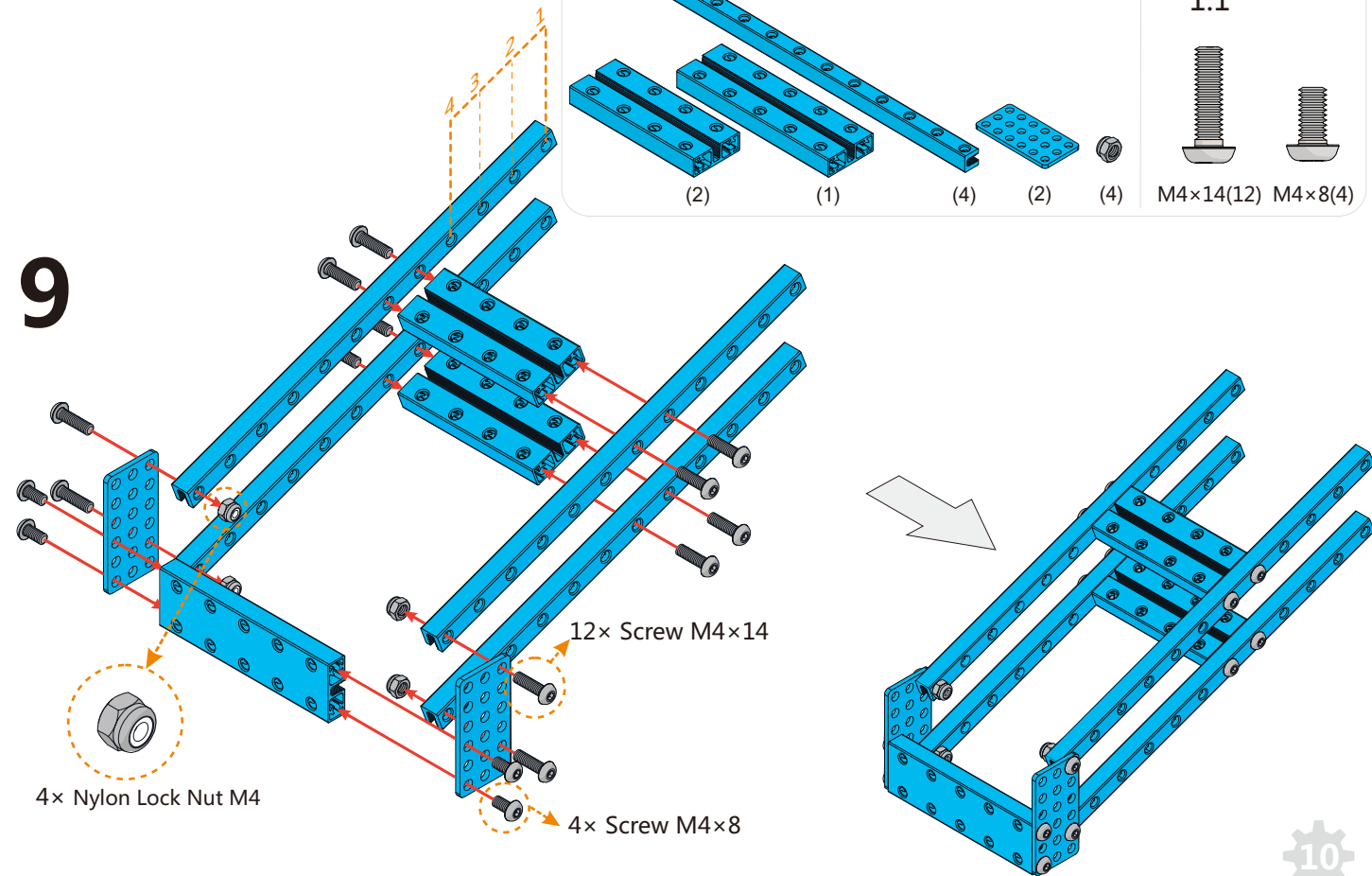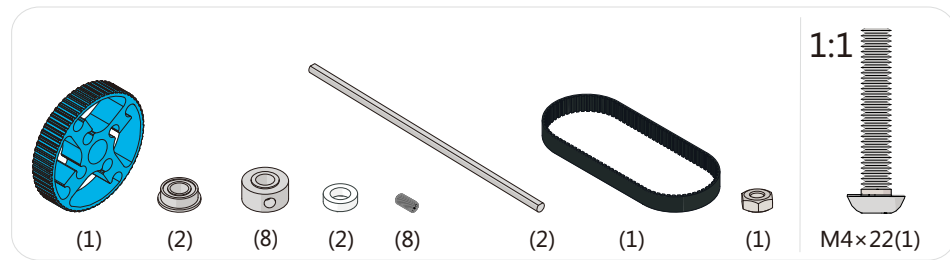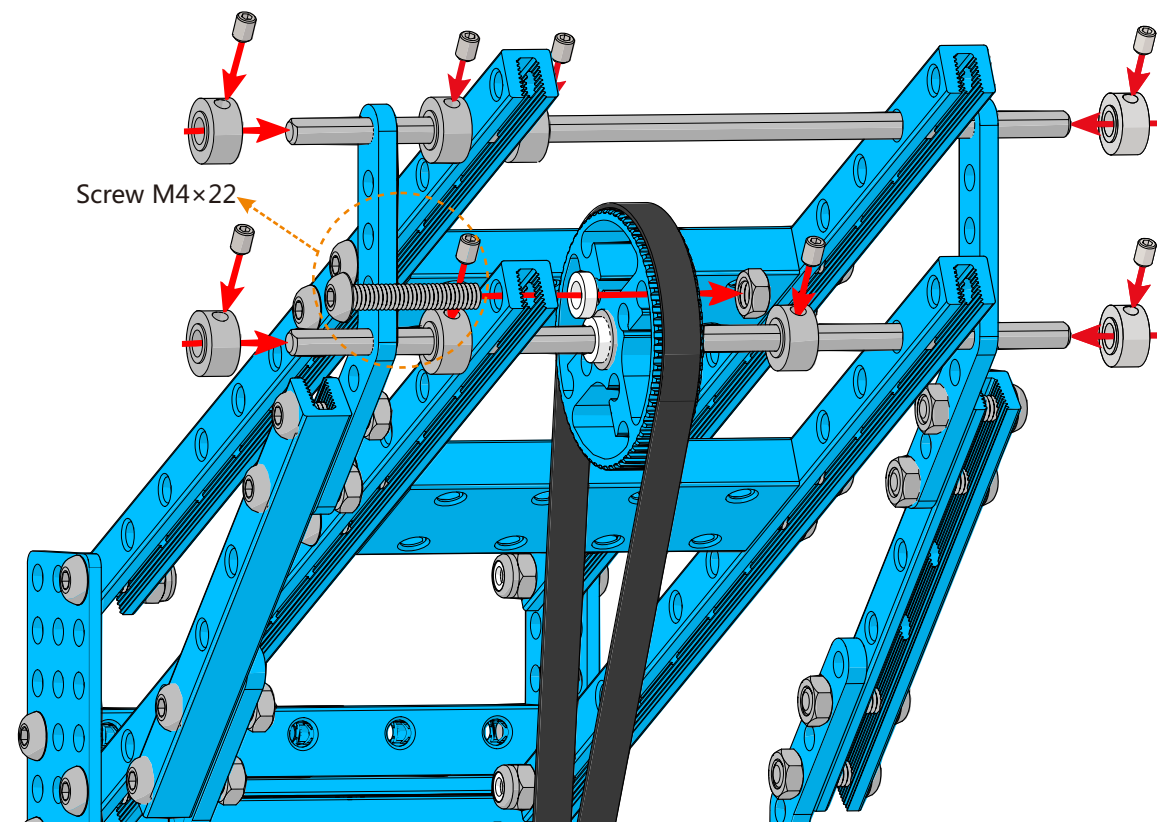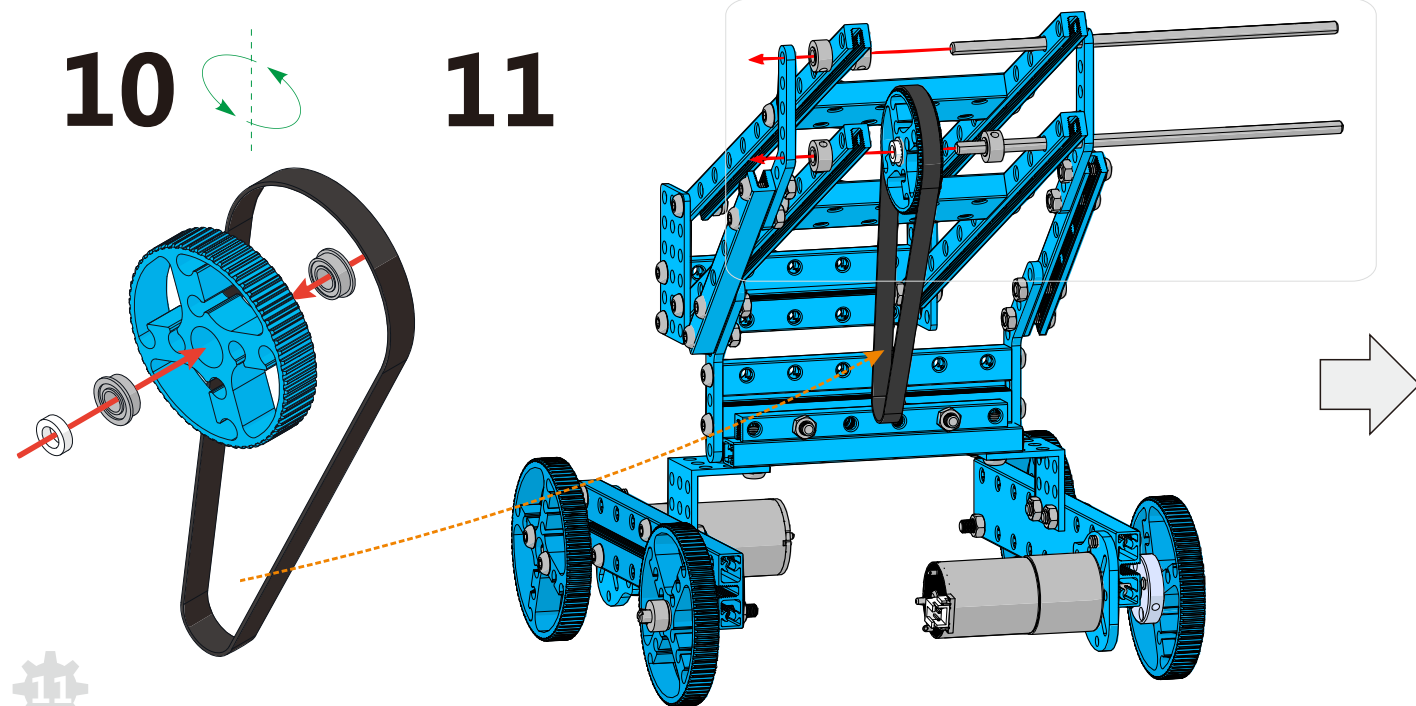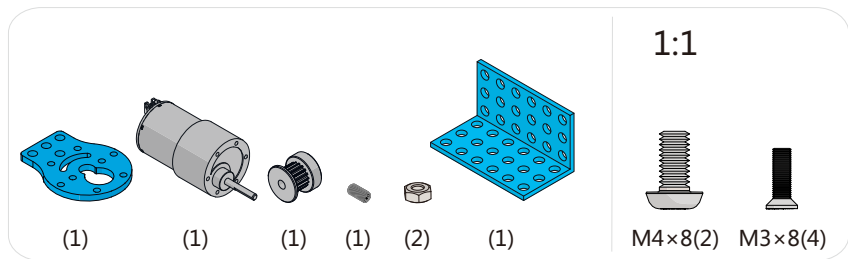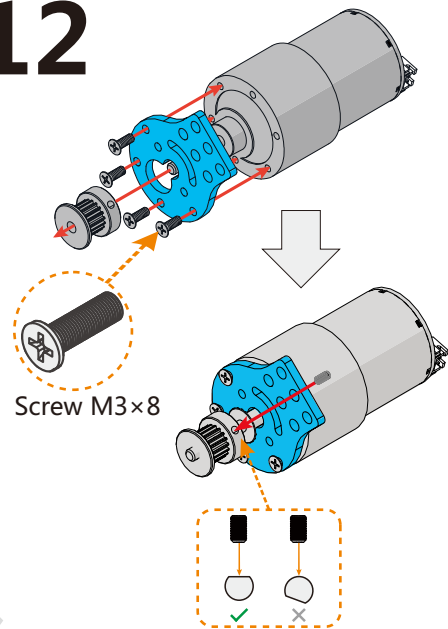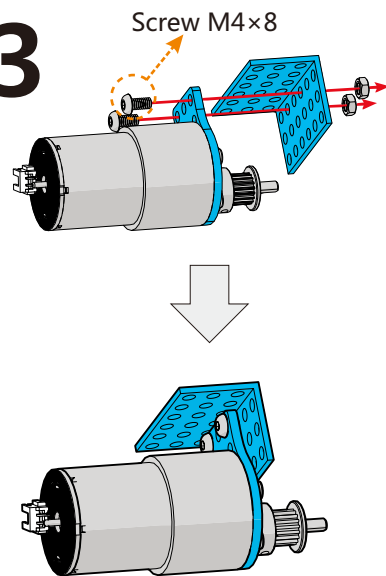
Screw M4×8

14
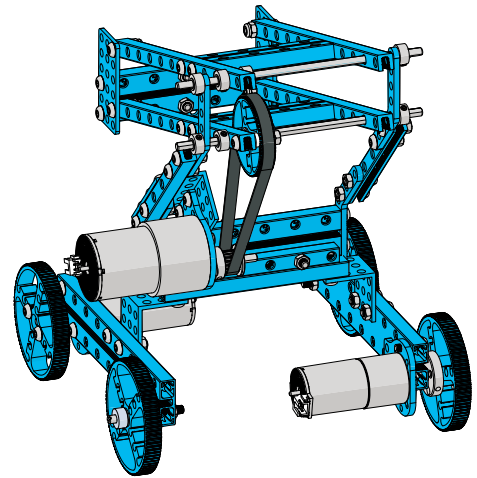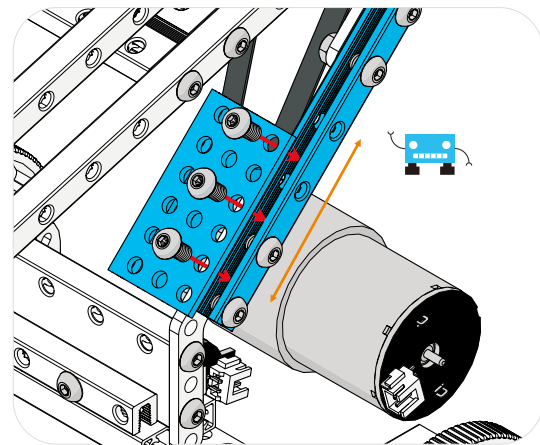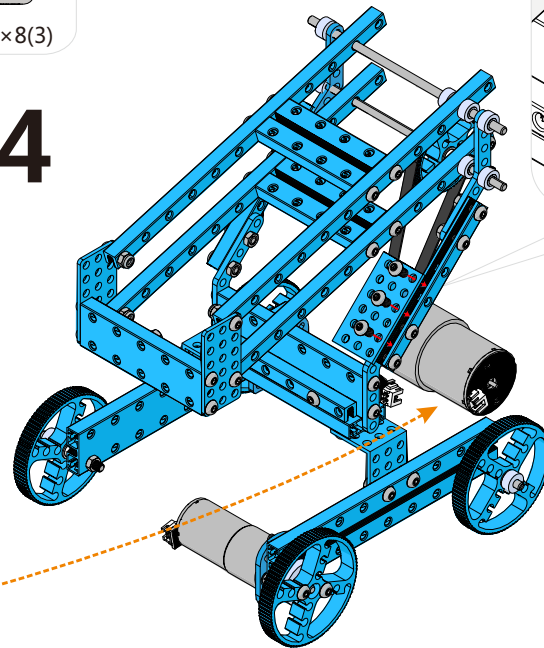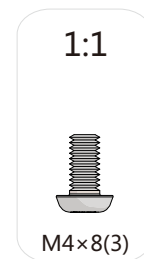
You may need to adjust the position of Bracket 3×6 to tension the timing belt.

(1)　(1)　(2)　M4×8(4)　M4×14(2)
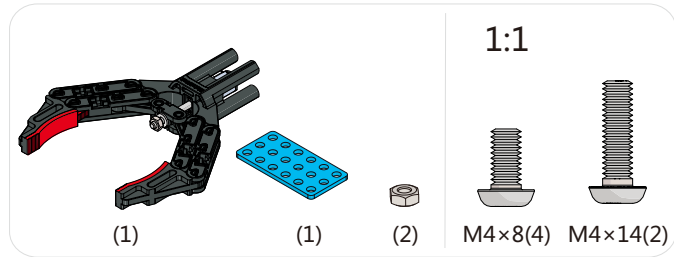
15

2× Screw M4×14

4× Screw M4×8

(4)　(1)　(1)　(1)　(4)　(6)　M4×8(4)　M4×14(6)
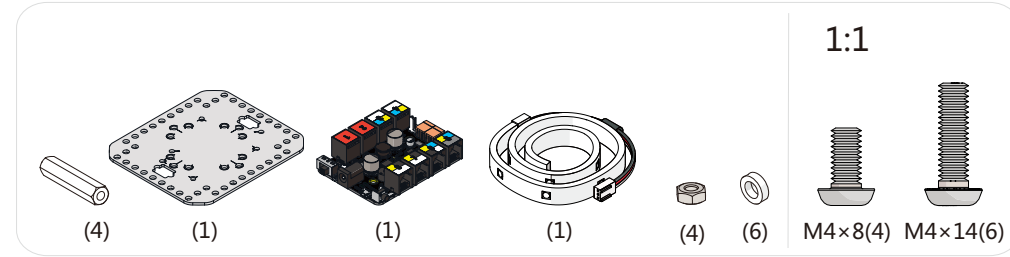
16

17

2× Screw M4×14

4× Screw M4×8

4× Screw M4×14

18 1:1

(1) (1) (2) M4×8(6)

19 1:1

(1) (1) (1) M4×8(4)

20

(36) (36)

21
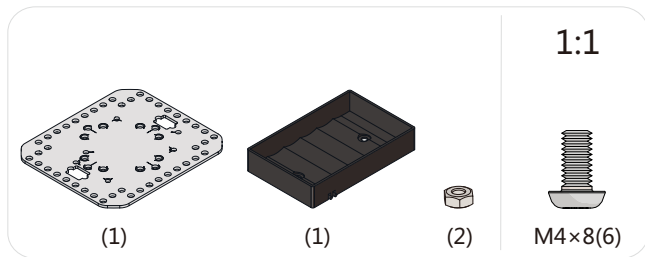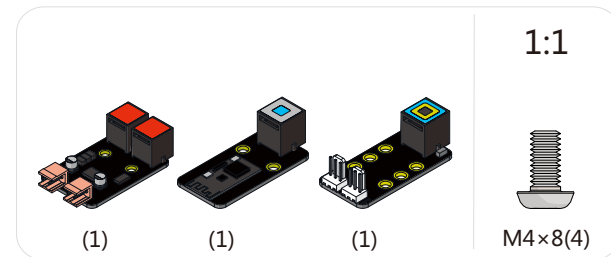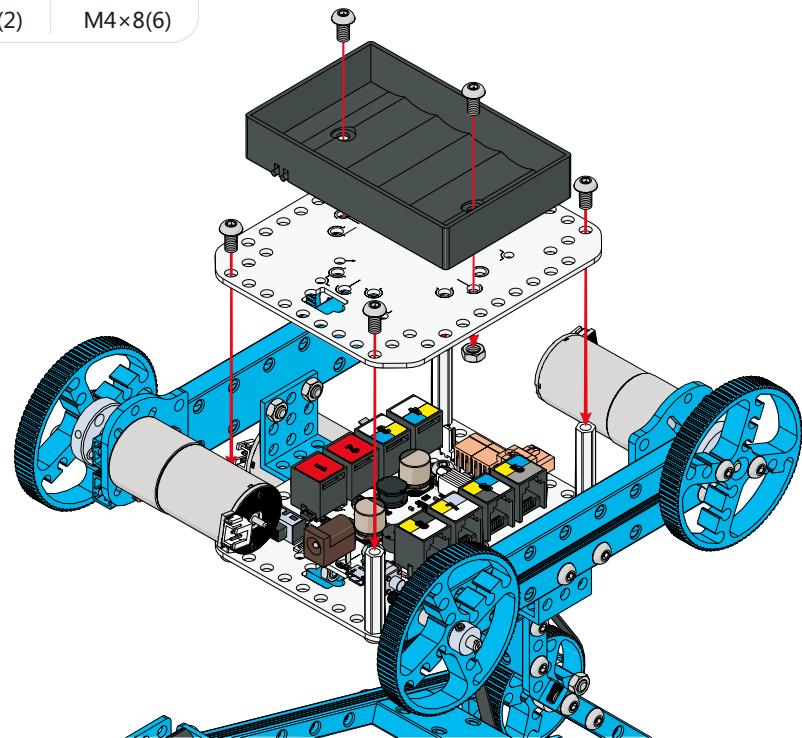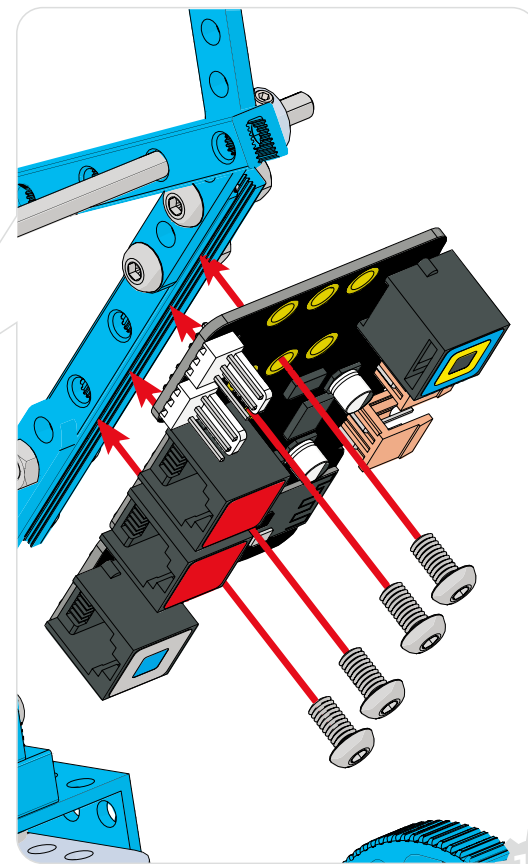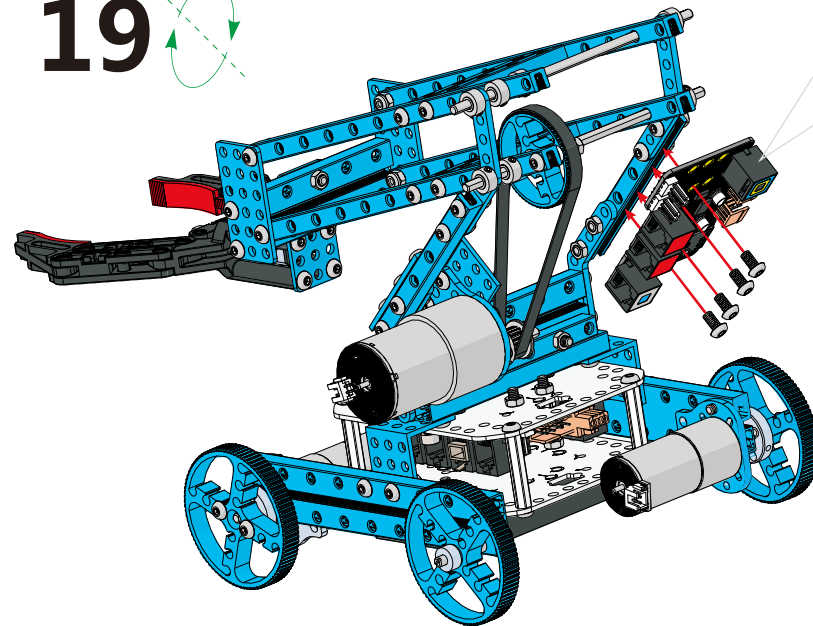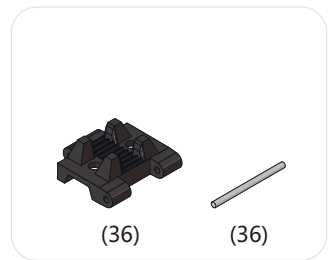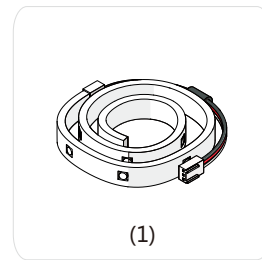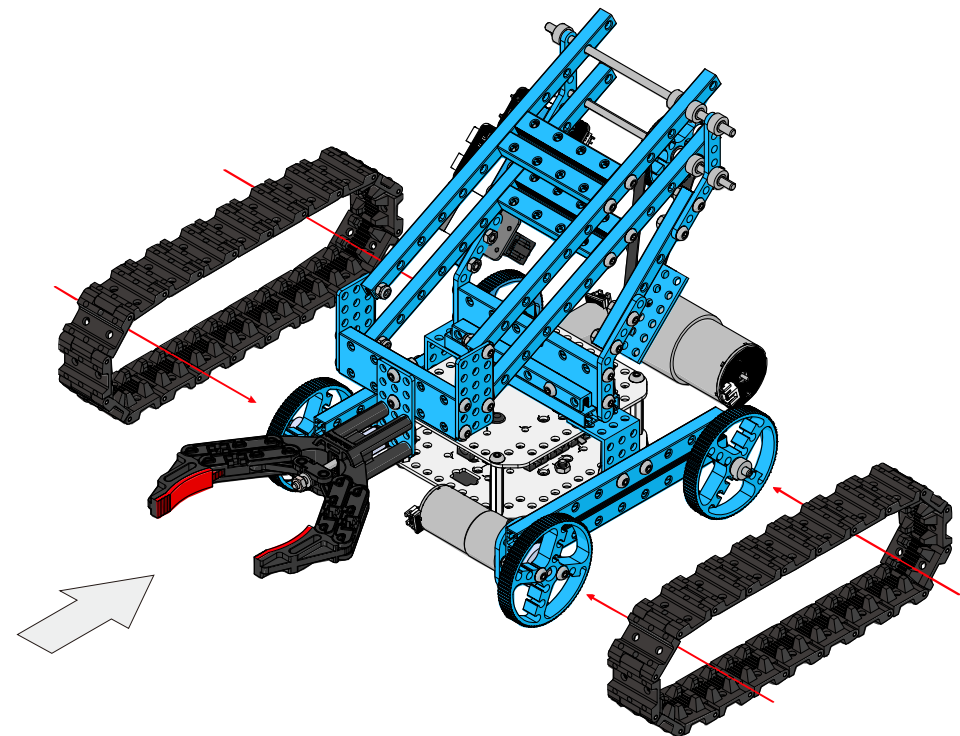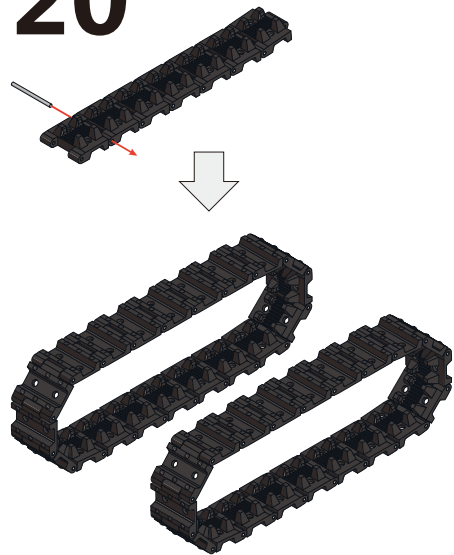
(1)
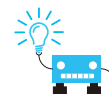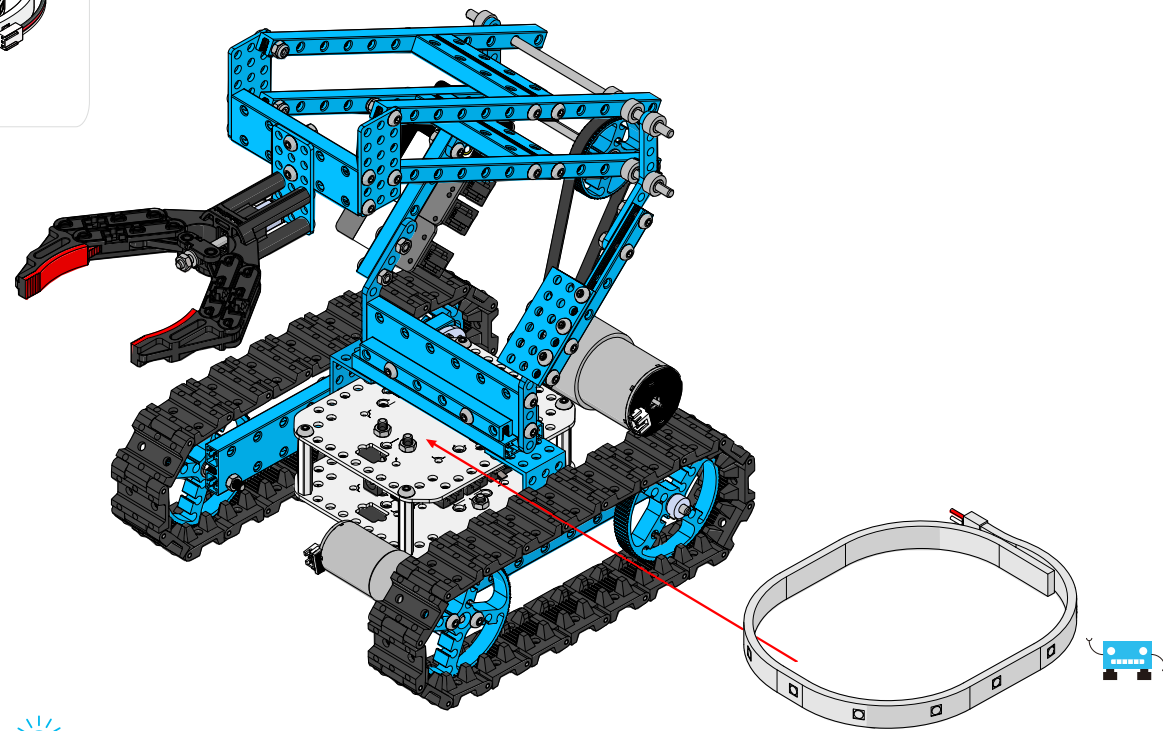
Use nylon cable ties when necessary.

DC Motor-37

DC Motor-25(M1)
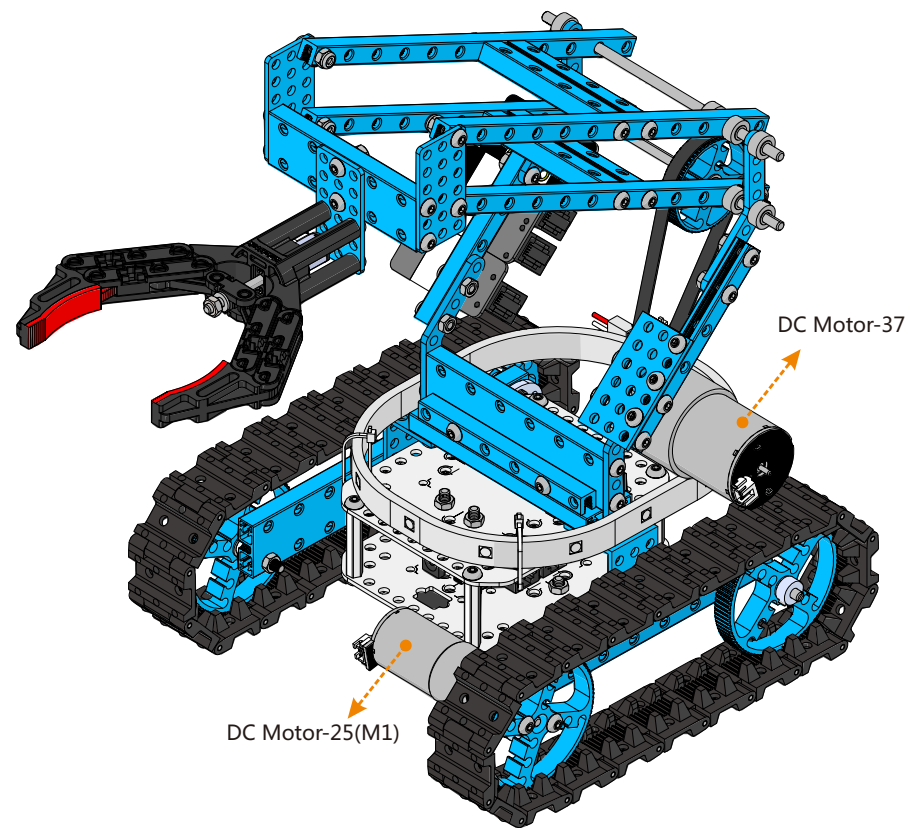
Wiring

To reduce the electromagnetic interference, please consider to add the ferrite ring to the wires which connnected to motors.

4× 4× 4× 3×

Battery Holder(6×AA battery, not included)

Robot Gripper

LED RGB Strip Addressable

Me RJ25 Adapter

Me Bluetooth Module

Makeblock Orion

Me Dual Motor Driver

DC Motor-37

DC Motor-25(M1)

DC Motor-25(M2)

You may need to switch the order of two wires to correct the rotation direction.
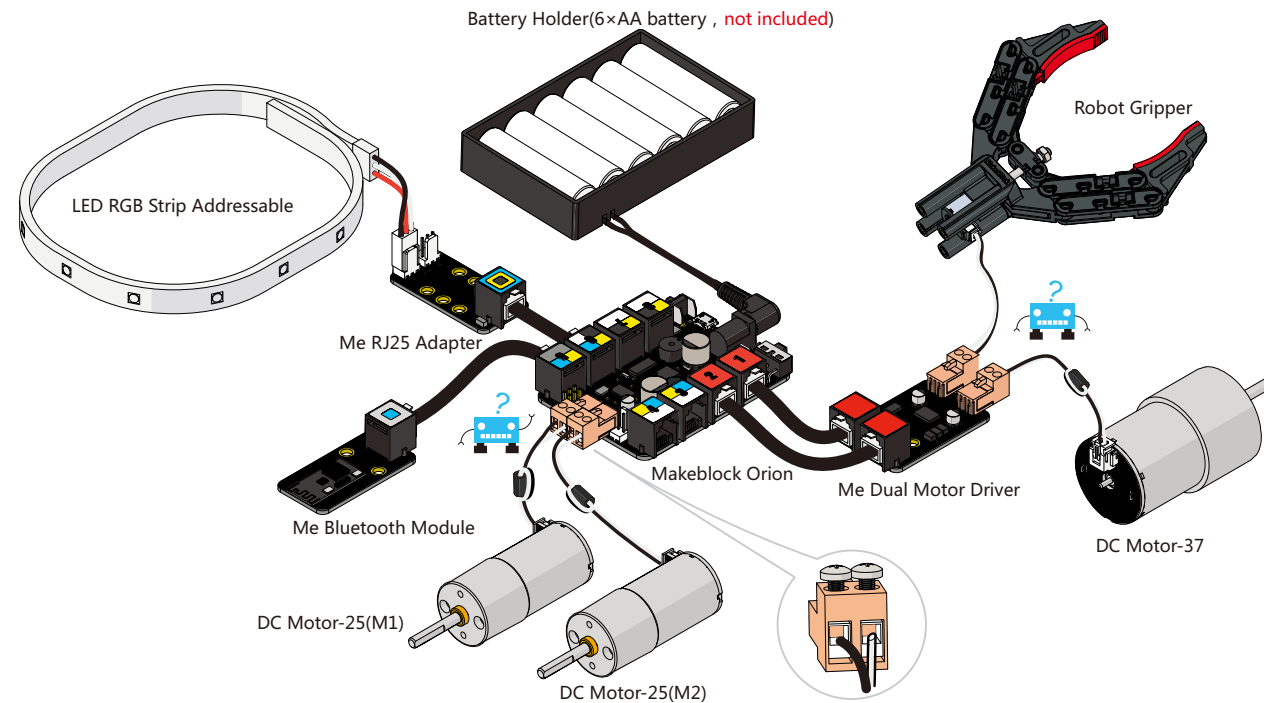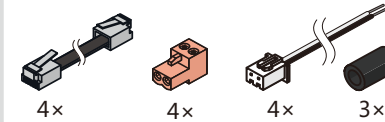
Control with App

1、Download and install Makeblock HD app by either way below.

    A. Download Makeblock appat http://app.makeblock.cc/ .

    B. Scan QR code below to download Makeblock app.(Figure 1)

2、 Check wiring, make sure everything is correct, and then turn on the power of your robot.

3、Turn on the Bluetooth of your smart device.

4、Run Makeblock app,select your robot from Examples.(Figure 2)
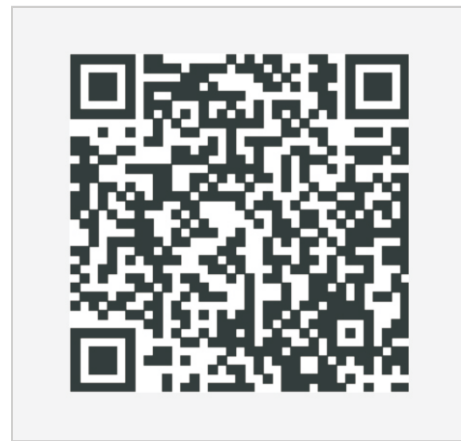
Figure 1
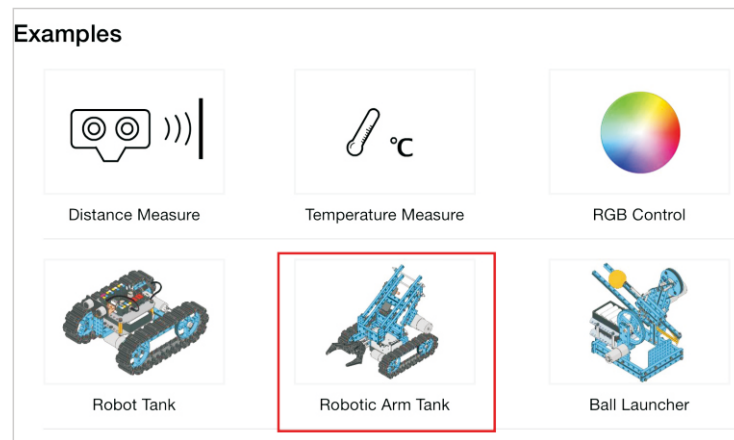
Figure 2

5、 Put your smart device close to robot, touch the play button(Figure3)to find Bluetooth device,and then connect the robot to your smart device.(Figure 4)

6、 Control your robot by the direction button(direction) and slider(speed).(Figure 5)
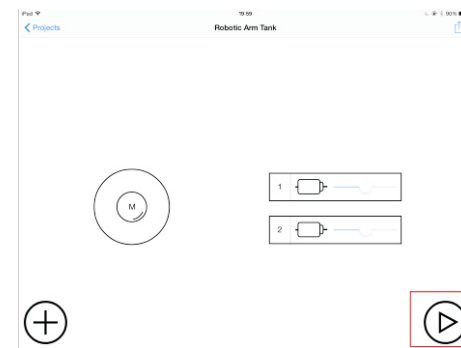
Figure 3   Figure 4   Figure 5

Now it's time to play your robot!

Robot Ideas--Further exploration

Robotic Arm Tank

Attack Tank

Robot Tank

Sumo Tank

Triangular Tank

Skill Racing car

Drink Car

Ball Launcher
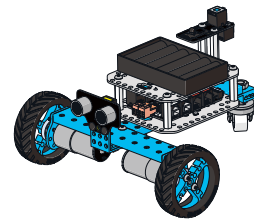
3-Wheeled Car

Forklift
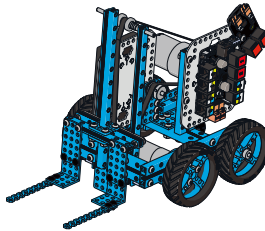
Please visit
https://grabcad.com/makeblock-1/projects
to view 3D models.

Programming--Further exploration

Working with mBlock--Hack the Physical World

The Ultimate Robot Kit support mBlock perfectly which allow you re-programming your robot by simply drag and joint the blocks of mBlock. No more difficult coding.

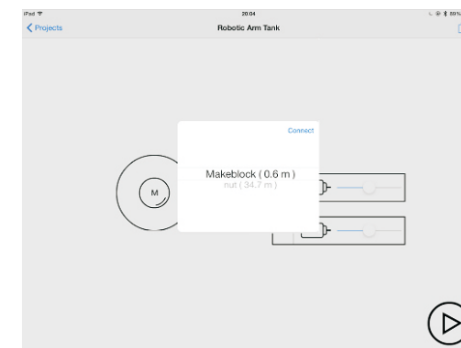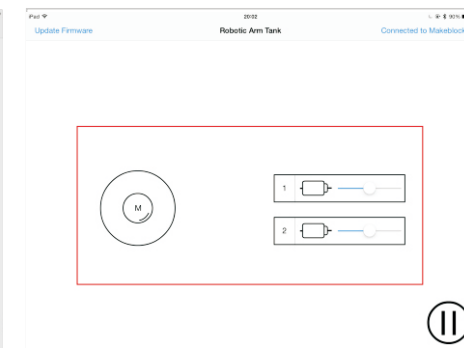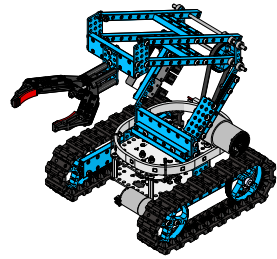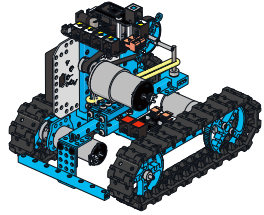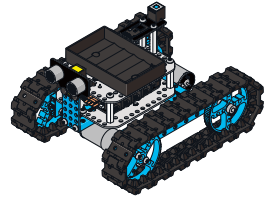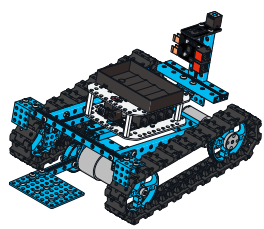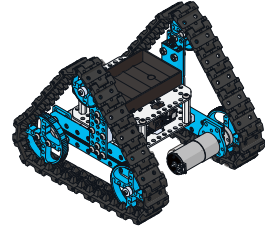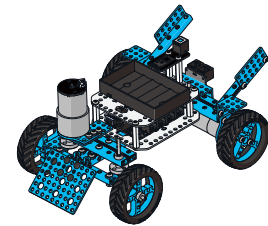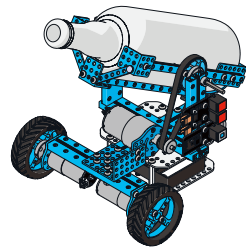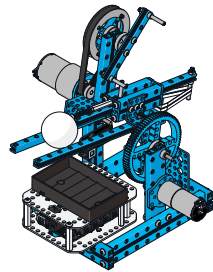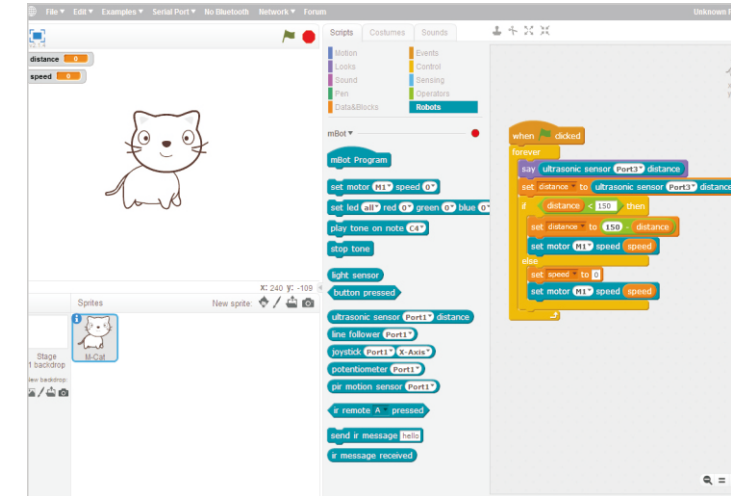mBlock is a free modified version of Scratch 2.0 developed by MIT Media Lab, mBlock add some hardware-related blocks in the original Scratch, with these blocks, users can read sensors, control motors and even a whole robot.

Besides blocks for the basic microcontroller functionalities, analog and digital writes and reads, PWM outputs. There are also blocks for each specific electronic modules, such as ultrasonic sensor, temperature sensor, light sensor, DC motor driver, stepper driver, etc. With these blocks, it's simple to interact with many kinds of electronic modules.

Visit the following URL for more details:
http://learn.makeblock.cc/learning-scratch
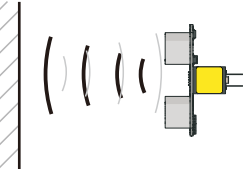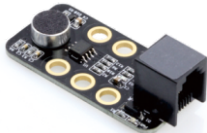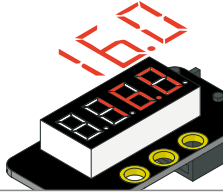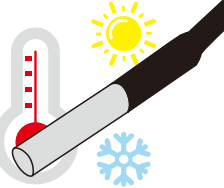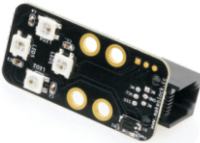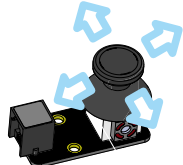
Working with Arduino IDE --Learn Programming the Fun Way

Arduino is an open-source electronics prototyping platform based on flexible , easy-to-use hardware and software.The Arduino software consists of a development environment (IDE) and the core libraries. The IDE is written in Java and based on the Processing development environment.

Visit the following URL for more details: http://learn.makeblock.cc/learning-Arduino
Download the library zip package: https://github.com/Makeblock-official/Makeblock-Library/archive/master.zip

Electronic modules on makeblock--Further exploration

	Ultrasonic module works for measuring distance from 3cm to 400cm.		**Me Sound Sensor** can measure the volume.It can used in some sound interactive projects,such as an voice operated switch.
	Me 7-Segment Display is a display module with four digit tube which can show some data ,such as speed ,time ,score etc.		**Me Temperature Sensor** is a stainless steel tube sensor which is used for measuring temperature.
	Me RGB LED module contains four programmable RGB LEDs. Color of each LED can be set by editing components of red, green, and blue.		**Me PIR Motion Sensor** can detect infrared ray which derives from animals/humans in less than 6 meters.
	Me Joystick is normally used to control the move direcion of object.		**see more on makeblock platform**

Kits on Makeblock--Further exploration

Music Robot Kit

XY Plotter

3D Printer