



# SMART MACHINES

## SMART BRICKS



# 7416

230 PCS



8 +

PROGRAMMING YOUR  
INTERACTIVE ROBOTS



MODELS  
TO BUILD



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## Product Features

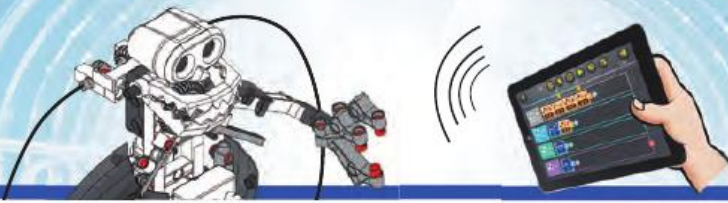
- The characteristics of the blocks allow you to create a truly unique robot.
- Gigo's technology department has adapted to modern trends by combining smartphones and tablets that allow users to download free apps that let them design models with the automatic program.
- The ultrasonic sensor lets children understand the principles of radar.
- The specially designed battery box turns on power by lightly shaking the model. After 60 seconds of cease to operate, the power shuts off to save power.

## Learning

- The 74 page colour instruction manual demonstrates the assembly of eight models so that kids can learn and practice the basics through joyful experimentation.
- Aside from detailed assembly instructions, the manual also includes principles and applications, so that children can learn about ultrasonic sensors and coding through play.
- This product includes machines, ultrasonic sensors, bluetooth technology, and app coding, to give children a full educational experience in becoming young coders.

## Innovation

- From action to innovation, add in your unique experiences and thoughts to guide children to inject their unique ambition and creative thinking to develop even more models and create their own robots.



## Suggestions to Parents

- This science experiment play set lets your children learn the concepts of gears and machinery through play. The many steps of assembly can develop a child's thinking ability and further lead them into the realm of science.
- Carefully read the safety warnings in the manual. We suggest that you assemble models according to the steps in the manual. You will quickly understand how to put the components together and furthermore create the types of models that you want.
- This toy set is suitable for children aged 8 and above. It allows children to explore machines and gears through the process of exploration and assembly of various models.
- Please teach your children battery precautions before they start assembling models.
- Do not place wires or other items in household sockets. This is very dangerous. The models are only suitable for use with ordinary batteries (1.5-Volt, AA/LR06).

## Safety Guidelines

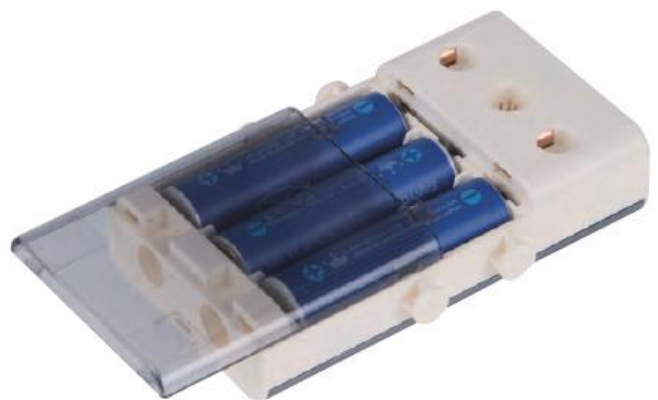
- Loading and removing the battery should be carried out by an adult.
- Pay attention to the positive and negative polarity of the battery.
- Alkaline batteries are recommended.
- Different types of batteries or new and used batteries are not to be mixed.
- Use only recommended or similar type batteries.
- The supply terminals are not to be short-circuited. A short-circuit can cause the wires to overheat and the batteries to explode.
- Exhausted batteries are to be removed from the toy.
- Remove the battery when you've done playing.
- Dispose of used batteries in accordance with environmental provisions, not in household trash.

### Warning

This set of toys is not suitable for children under three years old. Young children might swallow the small parts. Keep toys in a place that children can't reach.

## Product Cleaning

- Please remove the battery from the battery box before cleaning it.
- Use a slightly damp cloth to clean the parts.
- Do not use detergent.

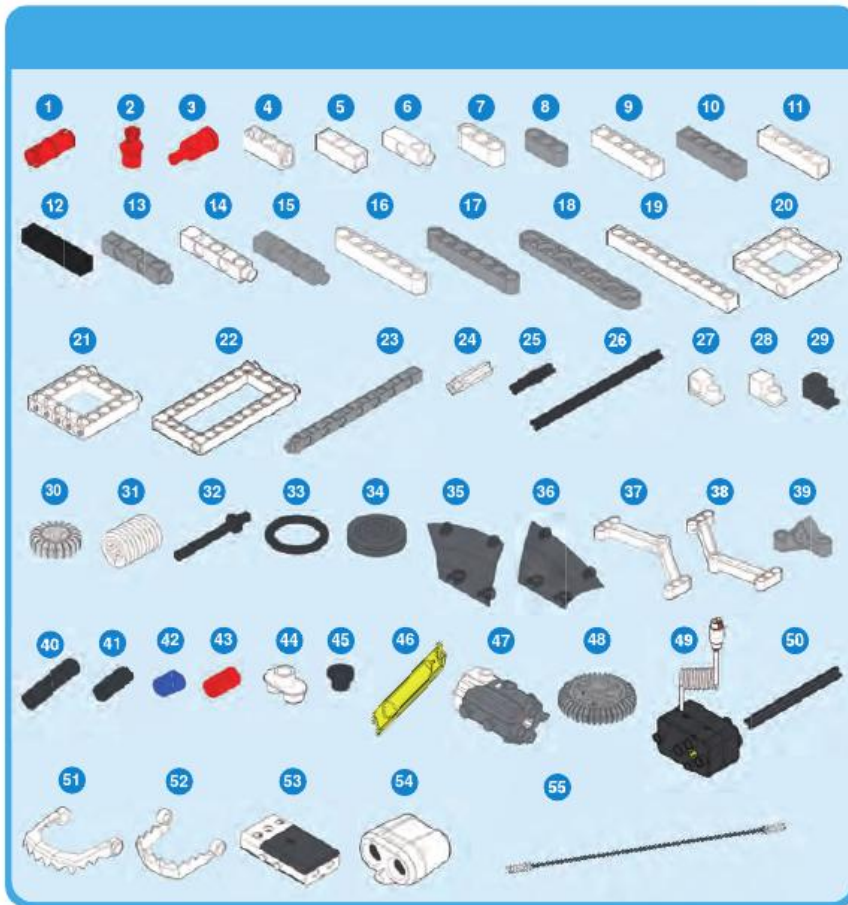


## Caution

Incorrect use of batteries may cause leakage, which could damage the surrounding environment, cause a fire or result in personal injury.



## Parts List



NO	PART NAME	MAX
1	Axle connector	18
2	Axle	8
3	Cam connector	9
4	3-Hole rod	1
5	3-Hole rod (side 2-hole)	5
6	Dual rod	2
7	3-Hole round rod	2
8	3-Hole round rod	6
9	5-Hole rod (side no hole)	1
10	5-Hole rod (side no hole)	4
11	5-Hole rod (side 2-hole)	2
12	5-Hole rod (side 2-hole)	2
13	5-Hole dual rod (no hole on the button)	6
14	5-Hole dual rod (side 2-hole)	2
15	5-Hole dual rod (side 2-hole)	2
16	7-Hole round rod	2
17	7-Hole round rod	6
18	7-Hole prolate rod	3
19	Rod	2
20	Square frame (side no hole)	2
21	Square frame	1
22	Dual frame (side no hole)	2
23	Long rod	2
24	Motor Axle	4
25	S DR. Axle 30mm	1
26	DR. Axle 100mm	1
27	90 degree converter(L)	4
28	90 degree converter(R)	4
29	90 degree converter(R)	6
30	S gear	8
31	Worm gear	1
32	Bar	1
33	O ring	2
34	S pulley	2
35	Shell side curve(L)	3
36	Shell side curve(R)	3
37	Vibro leg(L)	1
38	Vibro leg(R)	1
39	Teiangle connector	6
40	Hollow tube-30mm	4
41	Hollow tube-20mm	1
42	Extra loose peg	6
43	Peg	51
44	Two-in-one converter	4
45	Button fixer	4
46	Peg/Axle remover	1
47	Planetary gear motor box	1
48	M gear (4-hole)	10
49	40X motor	1
50	DR. Axle 65mm	3
51	Tooth upper	1
52	Tooth lower	1
53	BT Receiver (motor x2+sensor x1)	1
54	Ultrasonic sensor	1
55	Flexible drive shaft	2

## Planetary Gear Motor Box

Aside from the 40X motor box in this set, we have also used a planetary gear shift motor box.

The central transmission axis of this motor box is connected to the central gear. When the central gear turns, it moves the surrounding gears and turns them similar to a planetary orbit, hence the name.

The central gear is called the sun gear; the surrounding gears are planetary gears and the outer rim contains ring gears.

## 40X motor

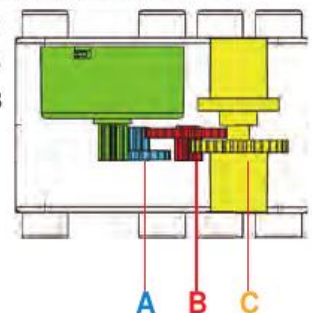
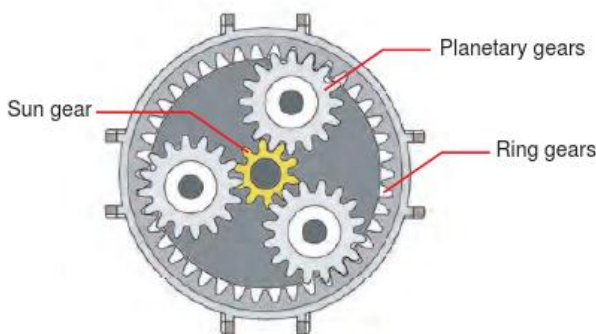
In this experiment module, we've utilized a special set of electric motor components as can be seen in the structural diagram.

There are 3 sets of intermeshing gears in the EV motor:

The speed ratio of gears A are 22:8

The speed ratio of gears B are 28:8

The speed ratio of gears C are 32:8



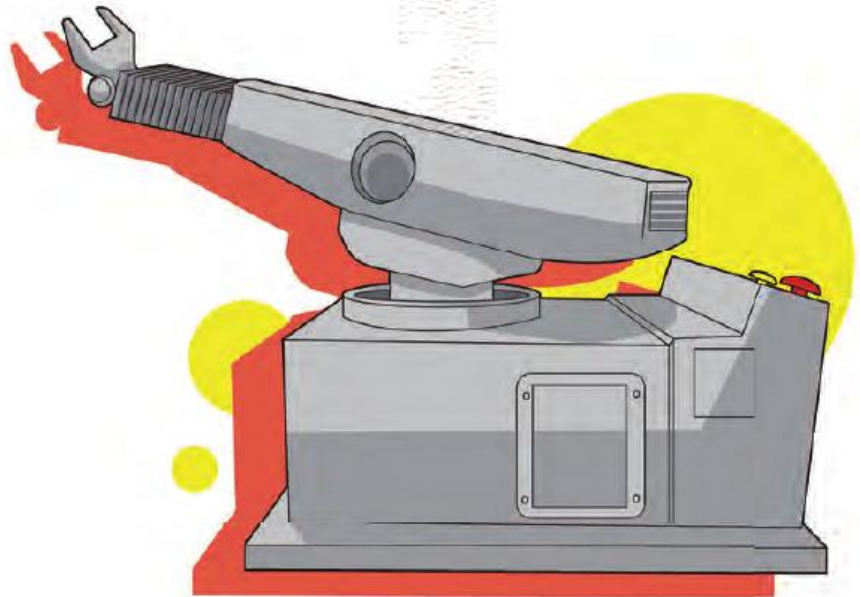
## Brief History of Robots

### Robot

This includes all machinery that simulates living organisms, whether it is human, cat, or dog. In industries, the man-made mechanical devices that automatically execute commands are also called robots; they are used to help or replace humans in work and are controlled by computer programs.

After the industrial revolution, robotics technology greatly improved and much automatic equipment became commonplace. The first automatic robot was invented in 1984 by Englishman, William Grey Walter. He was a neurological scientist and he built a robot with two sensors and a neuron (this was the pioneer of future social robots). An American, George Devol, invented the first robot with programmed code (strictly speaking it was a robotic arm that could repeat functions such as "grab" and "grip"). This was a critical milestone in the history of robotics and greatly changed industrial technology.

The development of robots continues and today's robots can do simple tasks. We are sure that in the near future we will be able to see robots that completely mimic human function.



## Brief History of Programming Languages

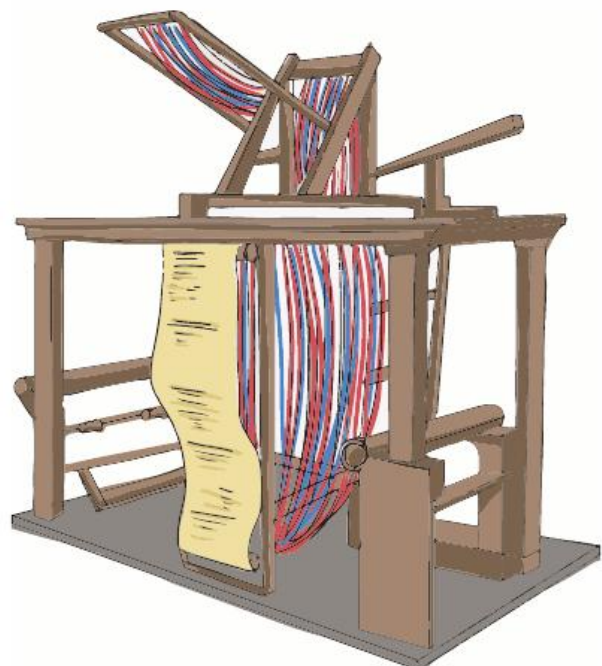
Anyone who has learned programming has heard of the name Ada Lovelace. She studied using machines to compute Bernoulli numbers and this is regarded as the world's first prototype of computer programming. Her research was an important reference for the development of future computer programming.

Programming languages are basically a type of code. They existed long before computers. The Jacquard loom invented in 1801 utilized coding methods to allow hole punches to automatically produce cloths with decorative embroidery.

The rise of computers allowed for a more precise way to process the code of programming languages. In turn, this allowed programs to become more complex and machines to automatically execute more precise actions.

The computer activities we are so used to, including web pages, games, and today's smartphone apps, are all built using programming languages.

Writing programs was always done using text and numbers, but some programming languages are being built with graphical user interfaces to make operation easier.





## Ultrasonic Sensor and Radars

This is a common occurrence in nature. Bats, whales, and certain insects can use sonar to detect "see" the obstacles in front of them.

When sound waves hit an object, they use the distance and force of the sound wave's reflection to detect the object's size, direction, and speed. Through the use of sonar detection, they can even hunt their prey in total darkness and do not require the sense of sight.

Humans have discovered a way to apply these principles in technologies widely used in submarines, cruise ships, and planes, in devices we call "radar". The invention of radar allowed pilots to avoid collisions with other planes under conditions of poor visibility - such as flying through mist.

Police also use radar to detect the speed at which cars travel. Using this method, they can catch speeding cars!

Humans cannot hear sonar because the structure of the human ear cannot process sound waves that are too fast or at high frequencies. However, the machines humans invent can. In your assembled models, the robot's head has a ultrasonic sensor. One eye is the blaster, while the other eye is the receiver. This design allows your robot to "see" obstacles in front of it even in total darkness.

Maybe you can try operating it in a completely dark room and see how it works?





## Bluetooth

Bluetooth is a wireless technology that allows two mobile devices to exchange data over a short distance by forming a local area network and using wireless radio waves to communicate; it was invented in 1994.

Bluetooth technology is currently managed by SIG who are responsible for all technological standards. Globally, over 20,000 companies are members.



The term bluetooth is a derivative of ancient Nordic words Blåtand/Blåtann. The symbol for bluetooth is the combination of Hagall  and Bjarkan , or basically a combination of the first letters of the words Harald Blåtand.

## Downloading the Free App

Before you begin assembly, please download the robot control app "Smart Machines".

- If you are using the iPhone or iPad series of products, you can download the app from the App Store.
- If you are using an Android system, connect to Google Play to download the app.
- iOS devices must support Bluetooth 4.0 with a suggested operating system version of iOS 8 or above.
- Android devices must support Bluetooth 4.0 with a suggested operating system version of 4.3 or above.

ios



▶ **A**

Android

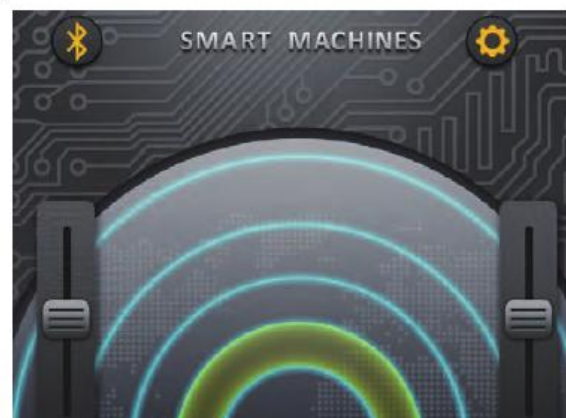


▶ **B**

### Follow the steps below:

1. Switch on your tablet or smartphone.
2. Scan the QR code **A**: This page will direct you to the **App Store** to download the app.  
Scan QR code **B**: This page will direct you to **Google Play** to download the app.
3. If you don't have a QR code reader installed, go to the website below to download the app  
iOs : <https://goo.gl/jgaHf5> • Android : <https://goo.gl/pibwix>
4. After the download is complete, open the app.
5. After execution, the first page you'll see will show a control panel.



▶ Control panel






## Control Instructions

You can now control the model.

1 The first step is to connect to the model via bluetooth. Press the top left button  and when the link connection is successful, the  image will flash.

2 When bluetooth has been successfully linked, the bluetooth symbol  on the upper left corner will stop flashing. At this point, the model's motor will automatically spin for one second to signify that the link is successful.


✘ If you press  again, it will disconnect the tablet and robot. Remember to do this.

3 When bluetooth is connected, it means the ultrasonic sensor's "radar" function has been activated.

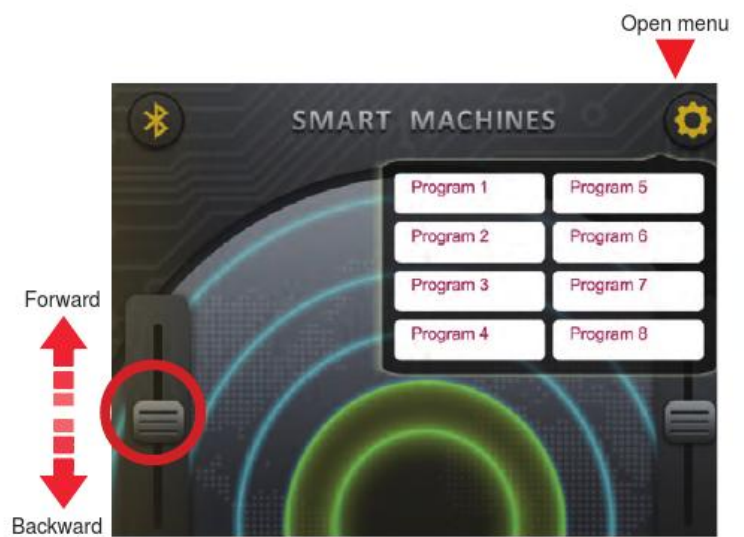
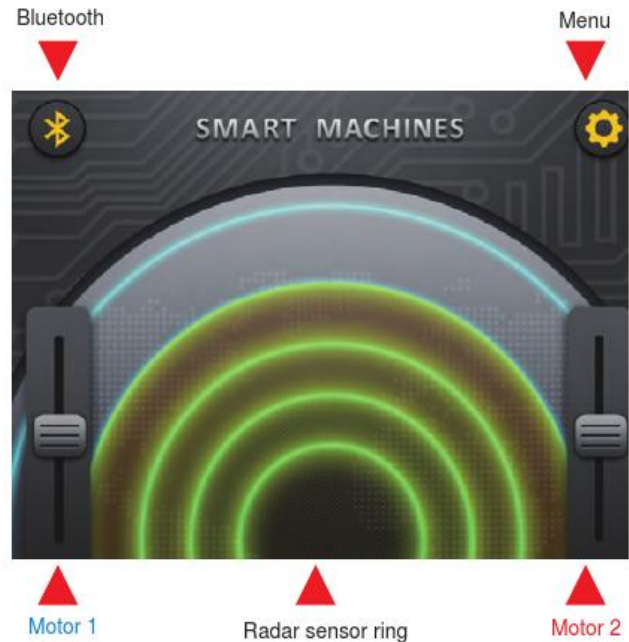
4 When the ultrasonic senses a nearby obstacle, you'll see the radar sensor ring become smaller and when the ultrasonic sensor is held far away, the radar sensor ring expands. Use different objects or walls to experiment!

5 If you have assembled a model and successfully connected to bluetooth, use your two thumbs to control the remote and operate the two motors.

✘ Left: motor 1  
Right: motor 2

6 If you want to use the program design function, press the button on the upper right corner  and it will display a row of windows. Select Program 8 to move on to the next step

✘ Programs 1-7 are default programs. You can use the blank Program 8 for the instructional steps below. .







## How to Save Programs

Next, we are going to teach you how to edit programs. Before we start, let's learn how to save files (or your hard work and programs will be for nothing).



1 When you go into Program 8, you will see the screen on the right.

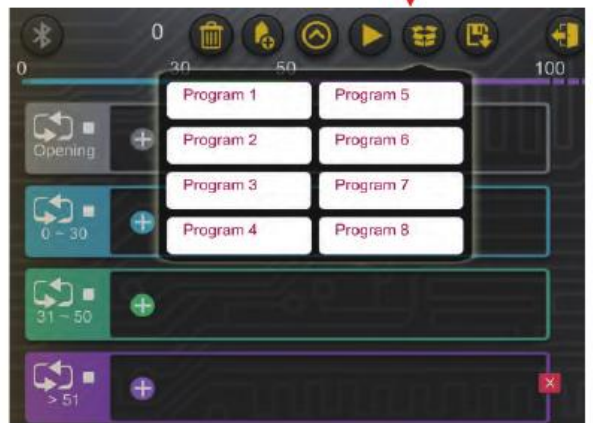
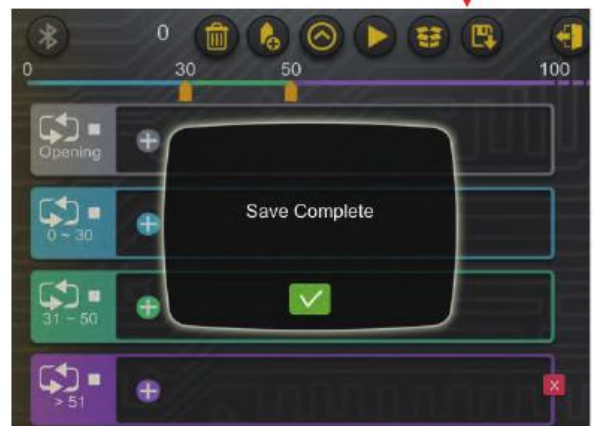
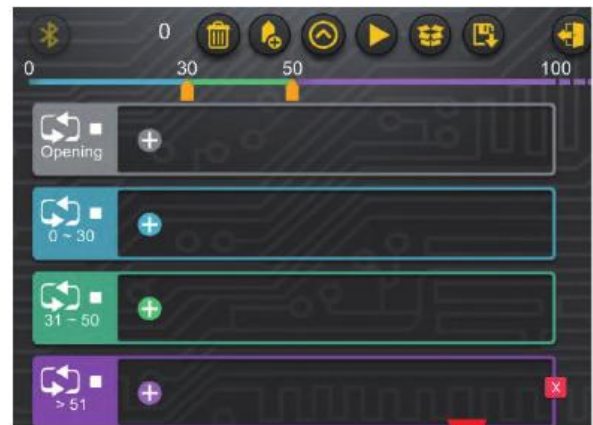
2 If you want to save programs you've written, just press  and a confirmation window will appear.

✘ Your saved files will overwrite the current program and cannot be saved to another program.

3 If you want to see another program, press  and choose from these windows.


✘ Similarly, when you select Program 1, your saved files will be written to Program 1.

4 If you want to exit the coding program and return to the robot controls, just press  and a confirmation window (diagram) will appear; press  to leave.





## How to Program


1 You are now ready to write your first program, please press .

2 Program windows 1-8 will appear.



3 Programs 1-7 are the default programs we have set up. After you've assembled each model, try playing with them using their programs.


4 If you want to write your own code, use Program 8 as it is empty. Now let's press it.

5 This is Program 8's editing page.

6 First step, press .

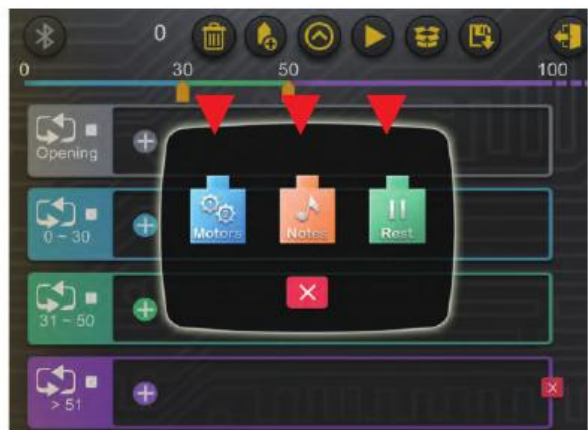
7 The window on the right will appear with three options:


- 一、  Programming the motors.
- 二、  Design some music.
- 三、  Write a pause program (e.g. that means after completing an action, then pause for 3 seconds then execute the following command).


8 If you press , the motor program editing page will appear (right diagram).

Here you can change the settings below:

- Motor 1 (blue) actions
- Motor 2 (red) actions
- The program's execution time




9 Press  to make the motor do a forward turn. Press multiple times for more squares, so the motor will turn at a higher speed.

Press  to make the motor do a reverse turn; similarly, pressing more squares signifies the motor will turn at a higher speed.

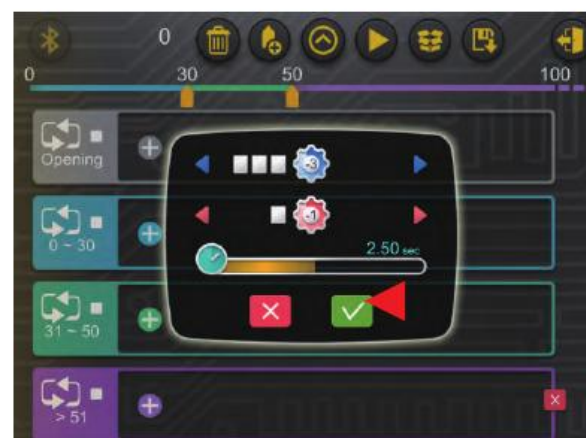
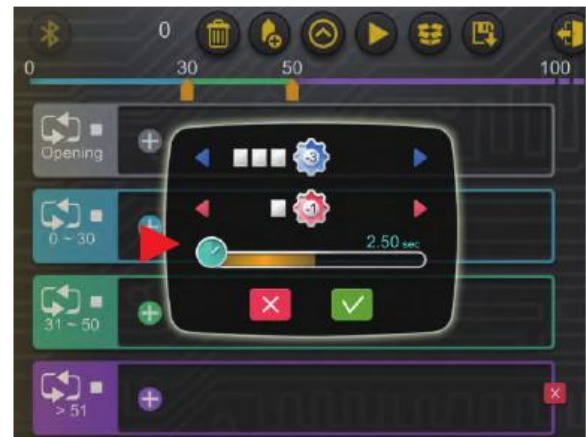
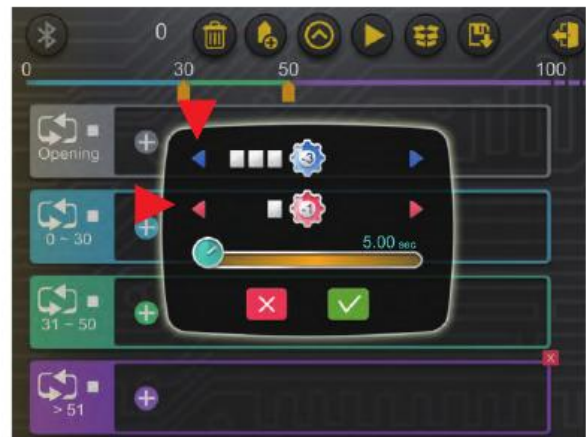
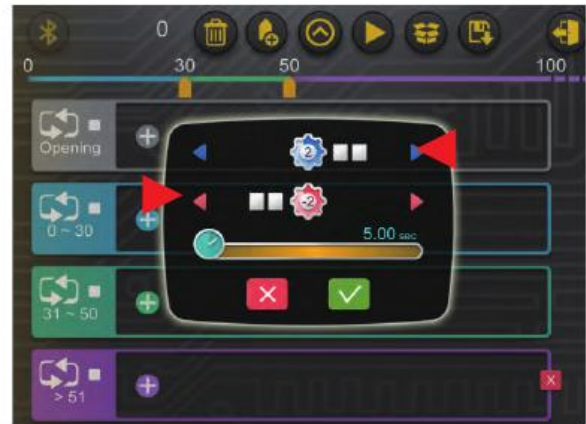
10 You can simultaneously setup motor 2. If you only program one motor then only that one motor will operate. If you setup both, then both motors will operate.

※The numbers on the motor represent speed; the positive or negative numbers represent forward or reverse operation.



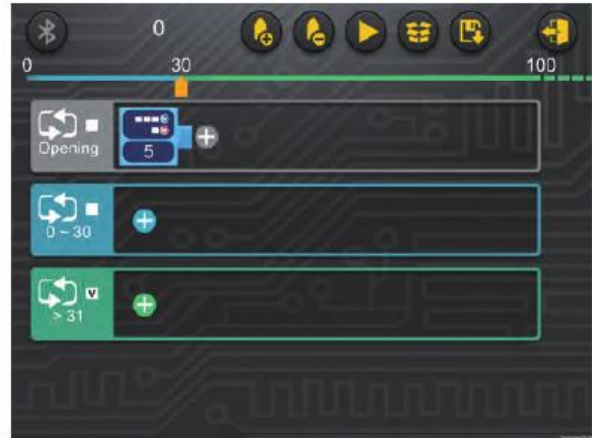
11  2.50 sec can be dragged with your finger to adjust the length of execution time.

12 When you have completed the settings, press .





**13** Next, the motor's square block will appear (as in the right diagram). Now you've completed programming the first motor, you can press to add operation settings for the next step.



Operating motor

Speed

Length of time (seconds)



**14** If you want to modify the program you've just edited, press the motor block and you will go to the next page.

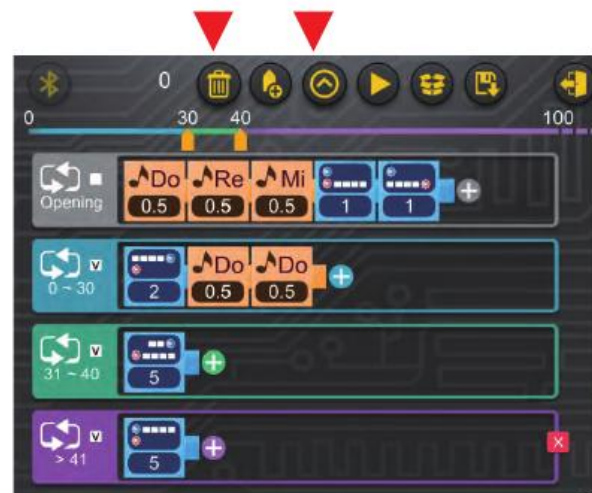


**15** Here you can make adjustments, edits, or even delete this program. Just press on the lower left corner to delete.


**16** If you want to delete a series of programs, just press on the right.

If you want to delete a page of programs, just press on the upper left.

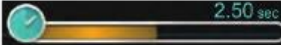

If you want to back to the set you saved last time, just press .




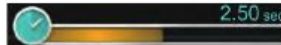

## Write Music and Pause Program

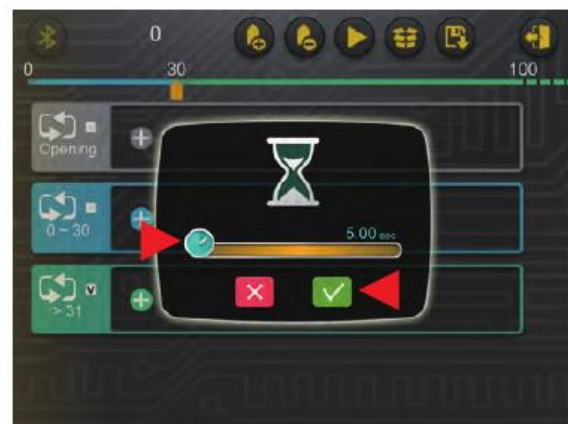
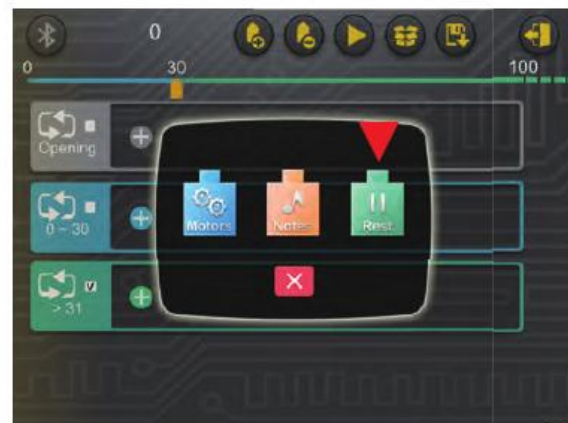
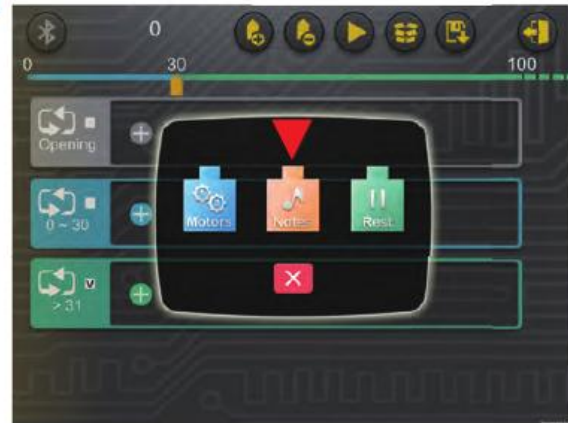
1 If you want to write a music program, press .

2 You will be taken to another window where you can design your music or voice program. Press the Do-Re-Mi and other musical symbols to write a piece of music. You can paste the music program into the middle of the motor operation program.

3 Use  to drag and set the length of the musical symbols, then press  to confirm.

4 The final option is to write a pause program. Press  and a new window will appear.

5 Use  to drag and set the length of the pause. Press  to confirm.






## How to Adjust the Parameters of the Ultrasonic Sensor

This program allows you to set the distance at which the model detects obstacles and how it reacts.

- 1 Return to the first editing page (right diagram).




- 2 When you press , the upper left corner will display the sensor's read distance.

※If your loop contains an edited program, the model will complete the action before reading.



- 3 Afterwards, you will see the screen display (right diagram). The image has turned from 0 rotations to 18, meaning the distance between the model and obstacle is 18 cm.



4 Use  to set limits, such as less than 10 cm, or more than 30 cm (right diagram). You can drag the icon to decide what actions are executed at different distance conditions. In other words, you can set the sensor to detect at specific distances and to execute specific actions.

ex:

- Initiate the model




- Set the limit at a distance between 0-30 to execute these specific actions



- Set to execute specific actions at a distance of 31-50

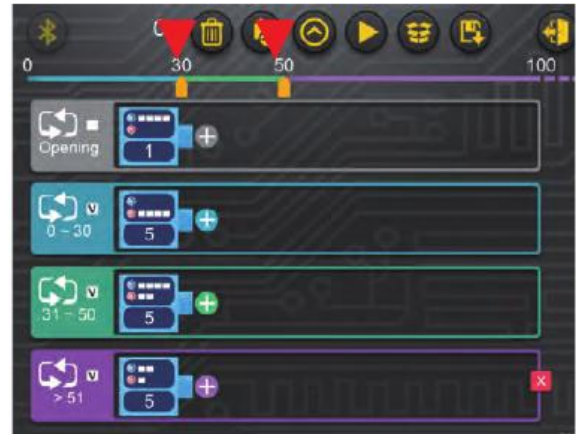


※ The check mark  represents you want a full loop of these specific actions (not checking it means to stop after execution is complete)

5 If you want to increase the distance of the limit, simply use the icon  to setup.

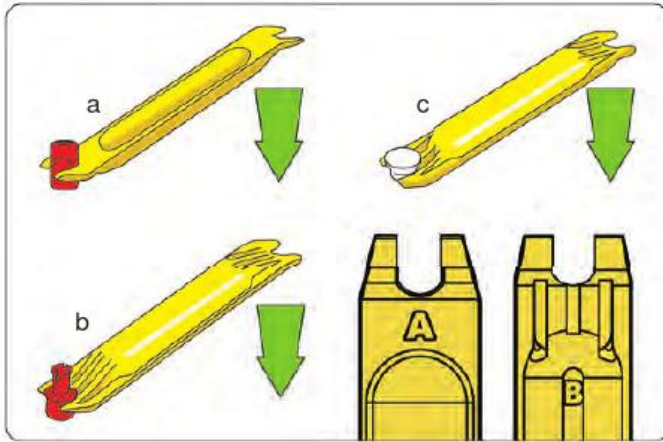
6 As shown in the image on the right, the seven limits have completed setup.

※ When you have over four limits, scroll more options.

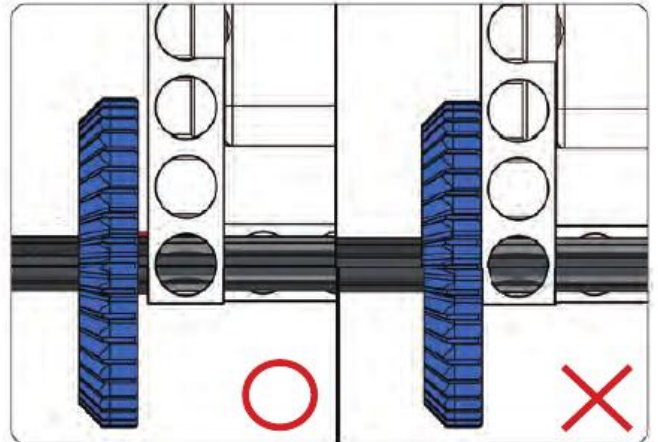




## Notes for Assembly

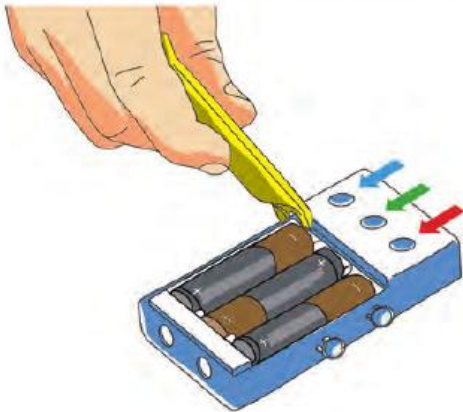


1. Use the "A" end of the Peg/Axle remover to pull off the peg (Fig. a).
2. Use the "B" end of the Peg/Axle remover to pull out the axle (Fig. b).
3. Use the "B" end of the Peg/Axle remover to pull off the button fixer (Fig. c).

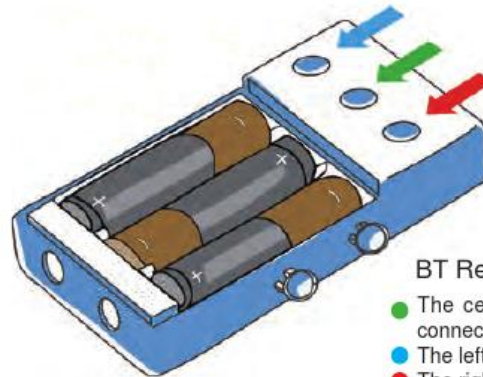


When attaching a gear or a tire to the framework with a drive axle, be sure to keep a gap of about 1 mm between the gear or the tire and the framework to decrease the friction caused in operation so that smooth motion can be assured.

## How to remove the battery



Use the "B" end of the peg/axle remover to take out the battery.



### BT Receiver

- The centre of the BT Receiver is connected to the ultrasonic sensor
- The left side connects to motor 1
- The right side connects to motor 2

▶ You can label the battery box with red and blue symbols to help you keep track of which motor is operating according to your program.

## Flexible Drive Shaft

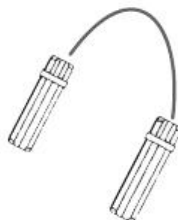
The transmission shaft is between the gear and gear shaft and provides power. Standard transmission shafts are as shown in diagram 1.

Flexible drive shafts have the characteristic of being easily adjustable over distance and are greatly changeable, as shown in diagrams 2, 3, and 4.

Another advantage is its flexibility. It can absorb impact and reduce vibrations. That is why flexible drive shafts are commonly used in transportation vehicles such as cars and scooters.



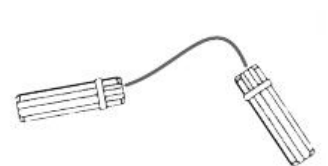
(diagram 1)



(diagram 2)

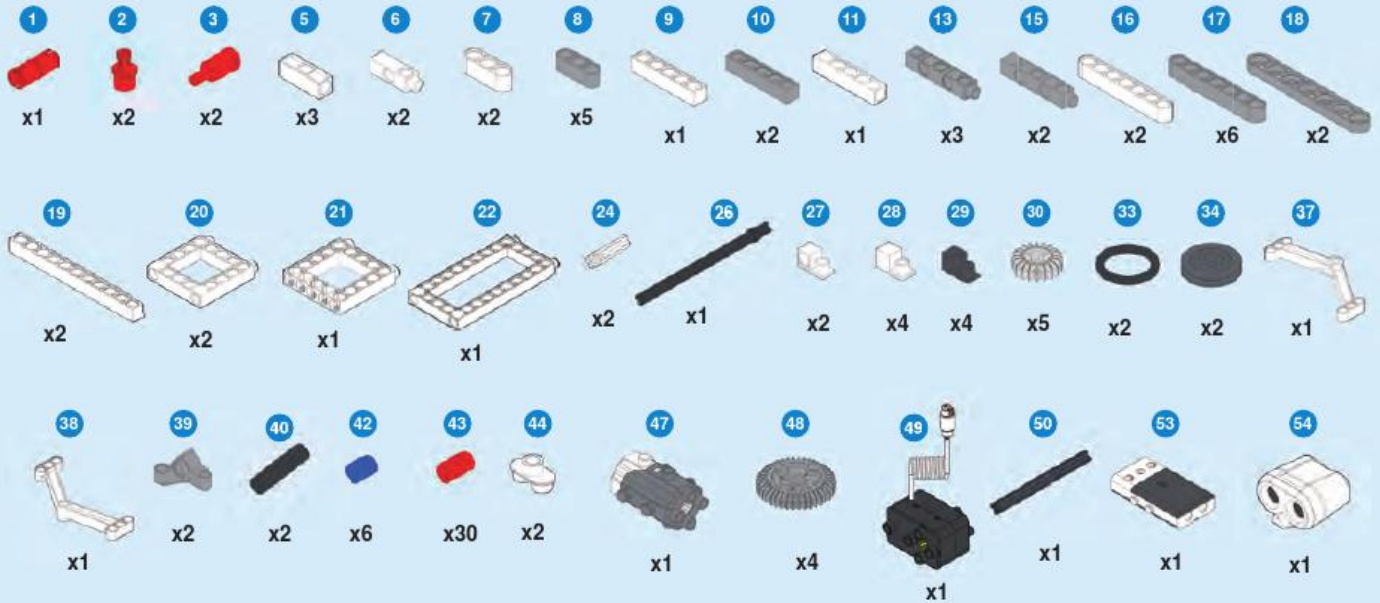


(diagram 3)



(diagram 4)





### Rescue Robot

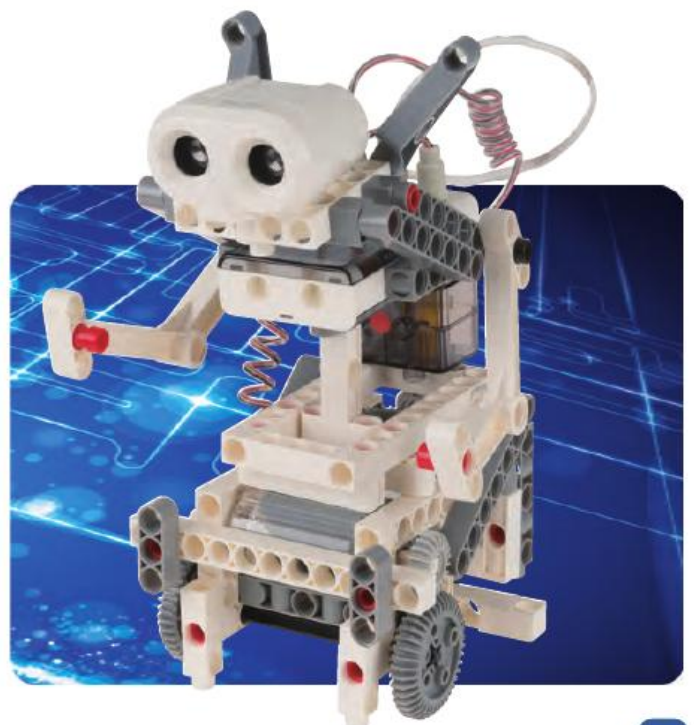
The rescue robot is a genius robot. You can put a smartphone on his chest and use this smartphone to video chat with another computer; you can then use the computer to see what the robot is doing.

These rescue robots are used in many rescue sites. If a collapse has made it impossible for rescuers to enter, they use rescue robots to scout ahead and gain more information about conditions.

※ Play with control instructions (p7)

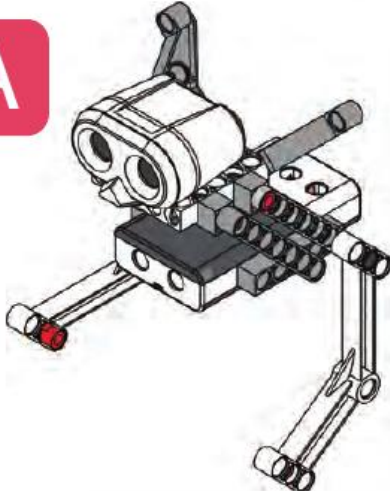
Motor 1: forward and reverse

Motor 2: rotate and change direction

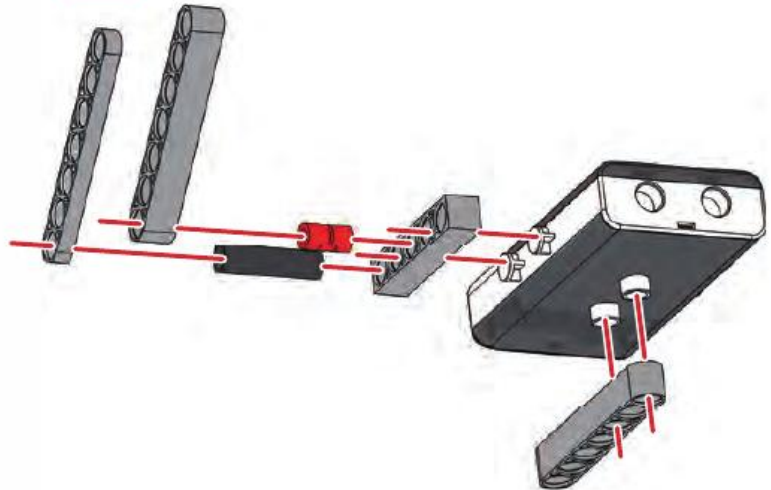




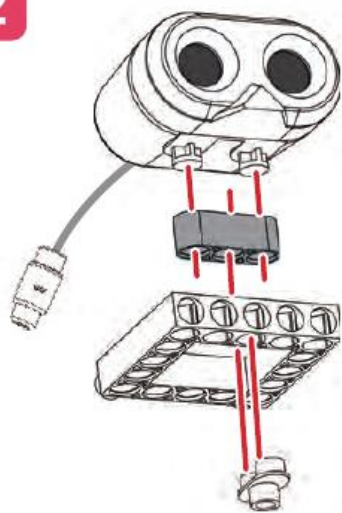
**A**



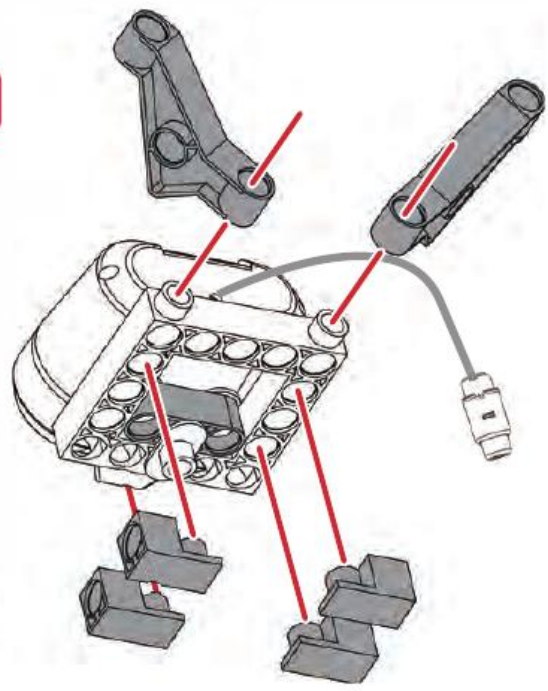
**1**



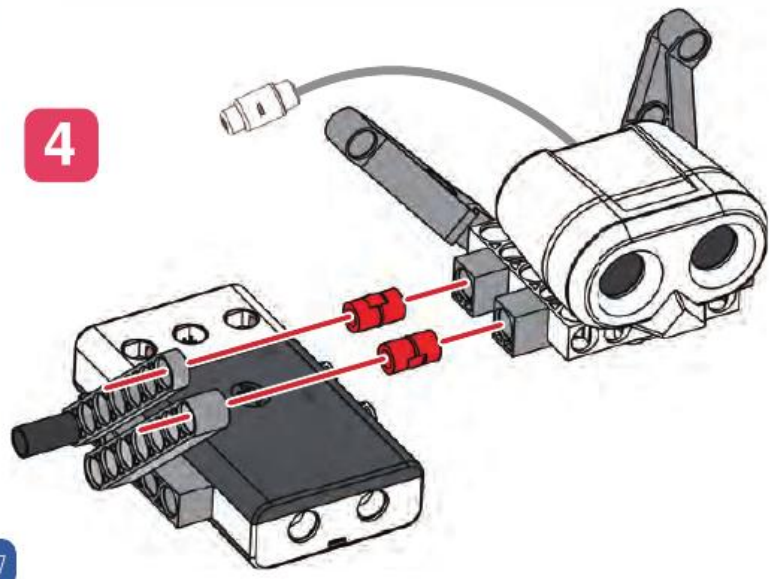
**2**



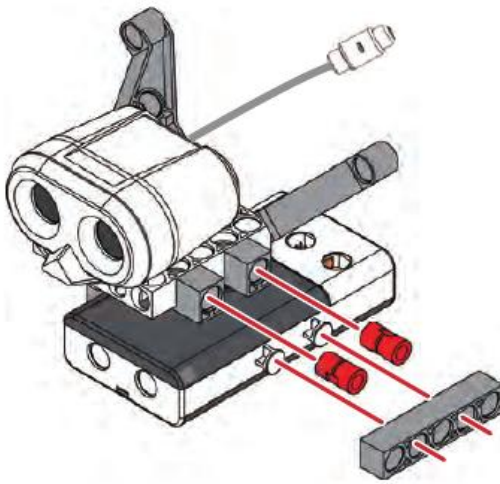
**3**



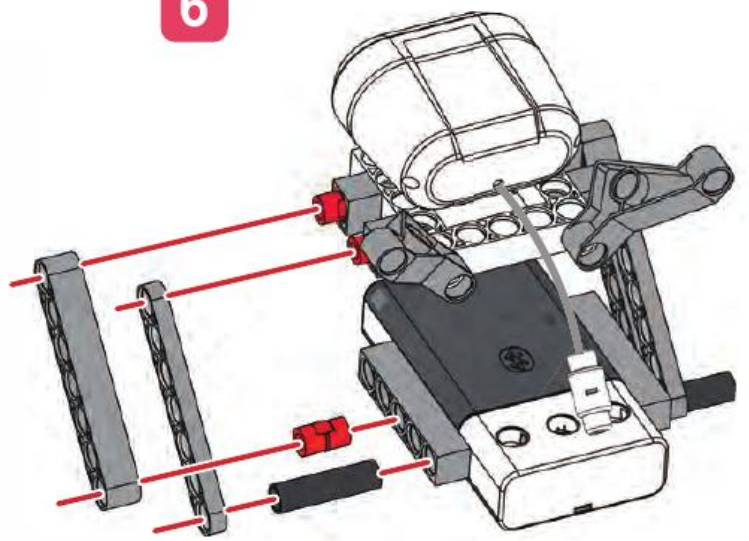
**4**



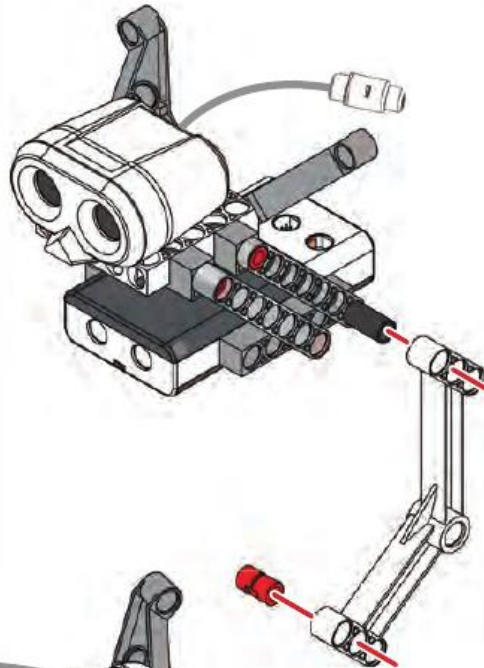
5



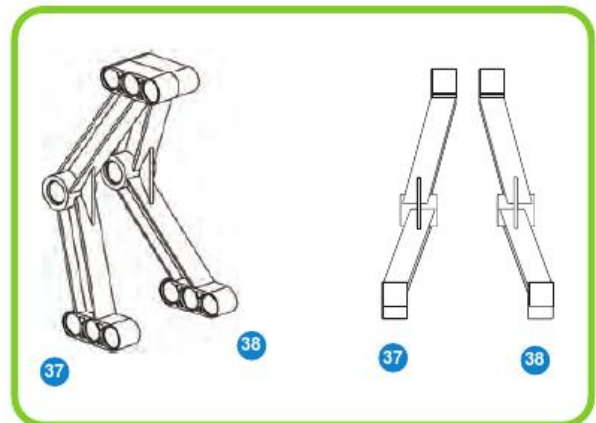
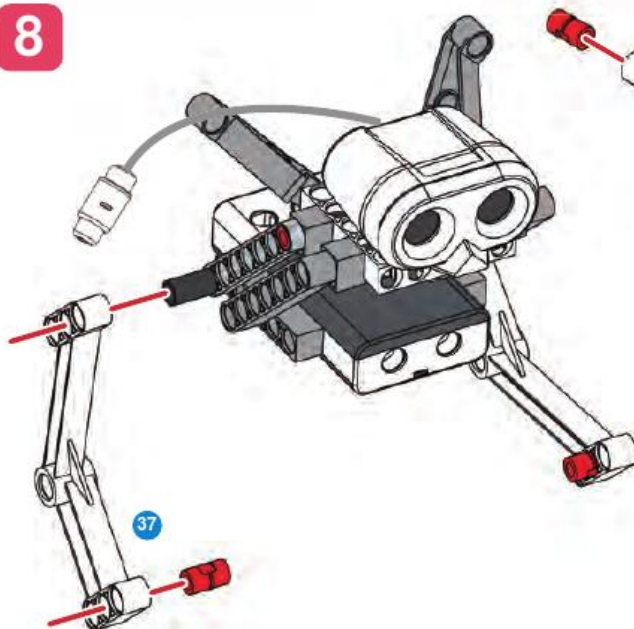
6



7

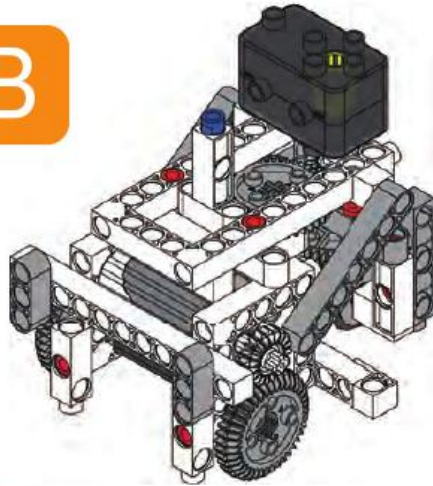


8

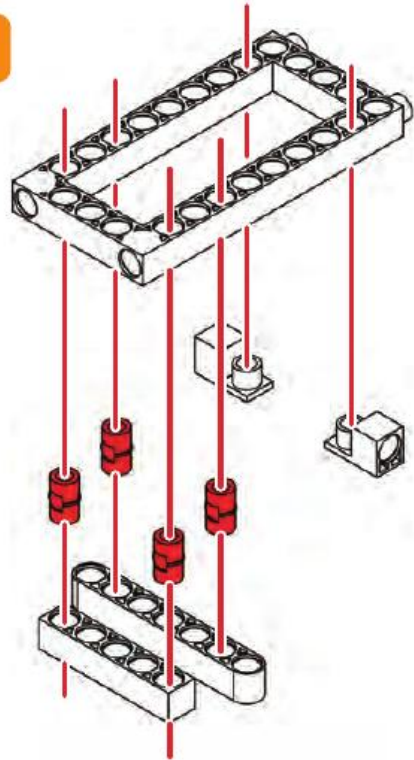




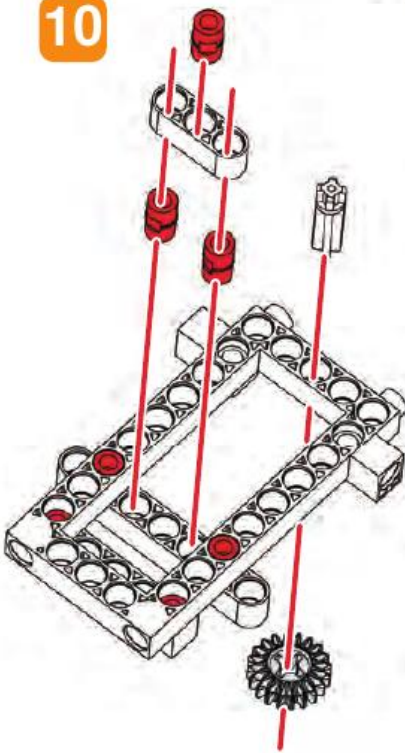
**B**



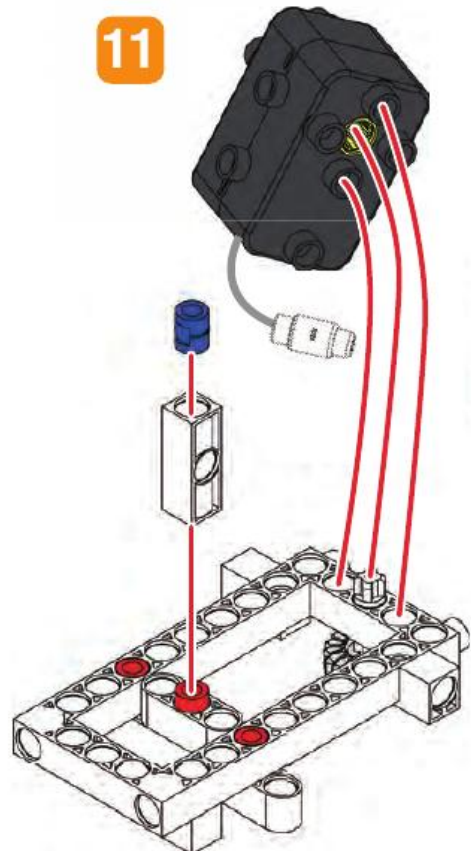
**9**



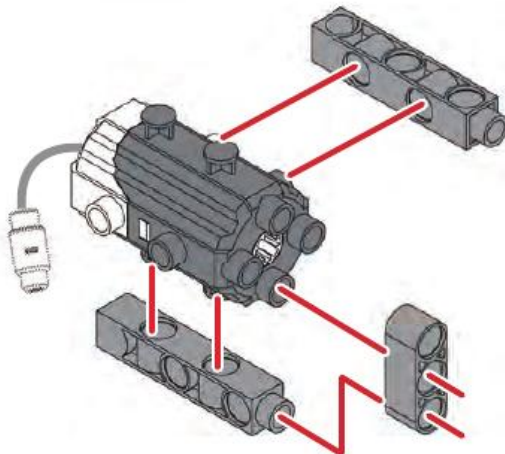
**10**



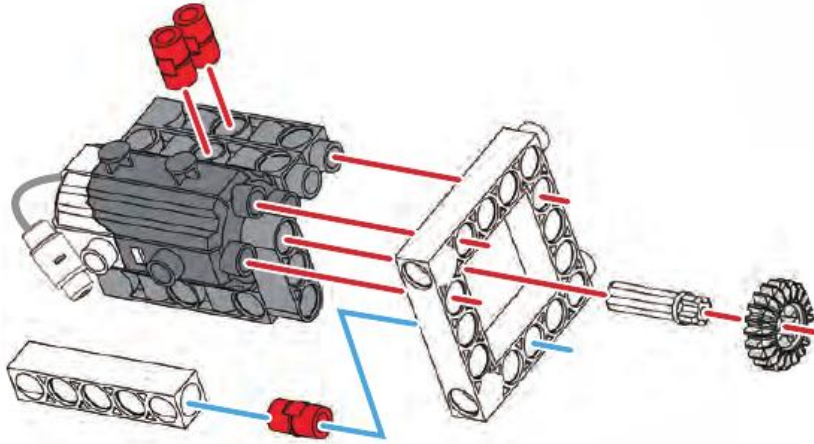
**11**



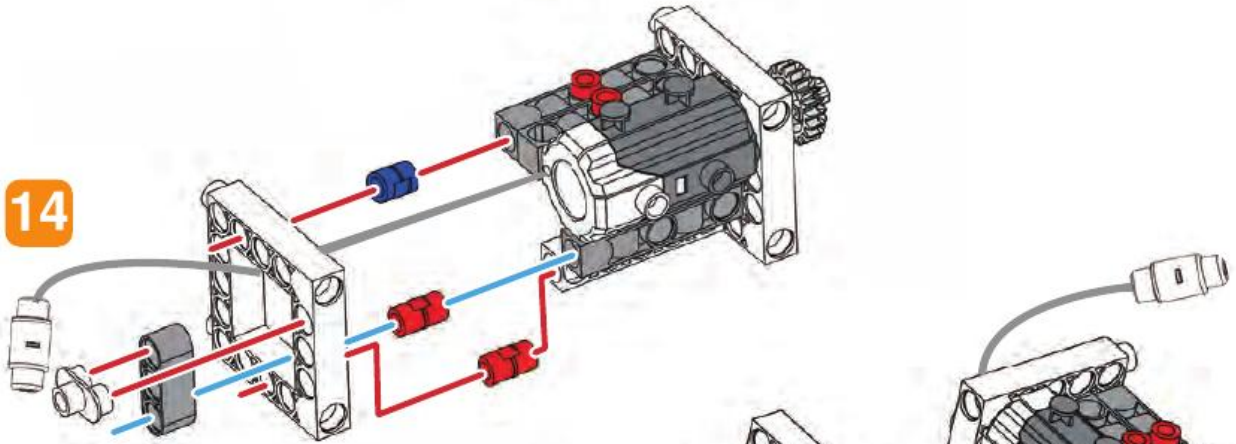
**12**



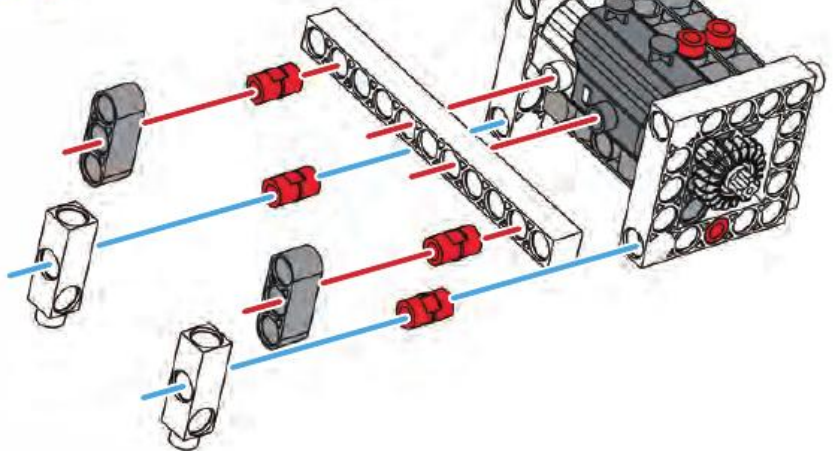
13



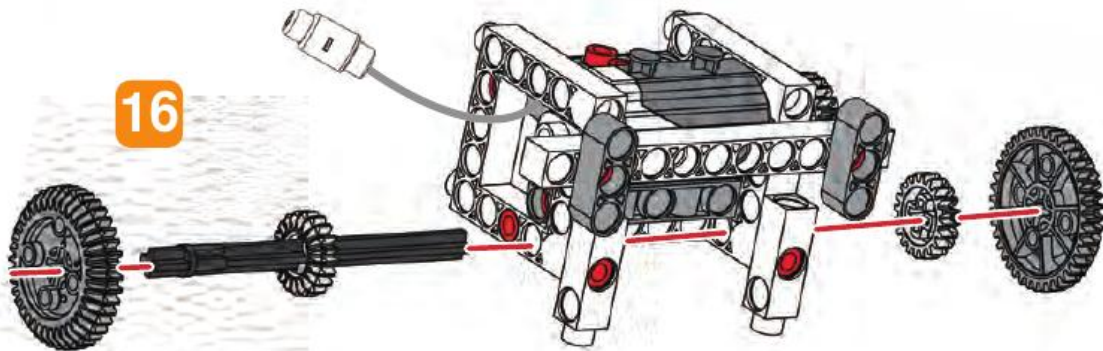
14



15

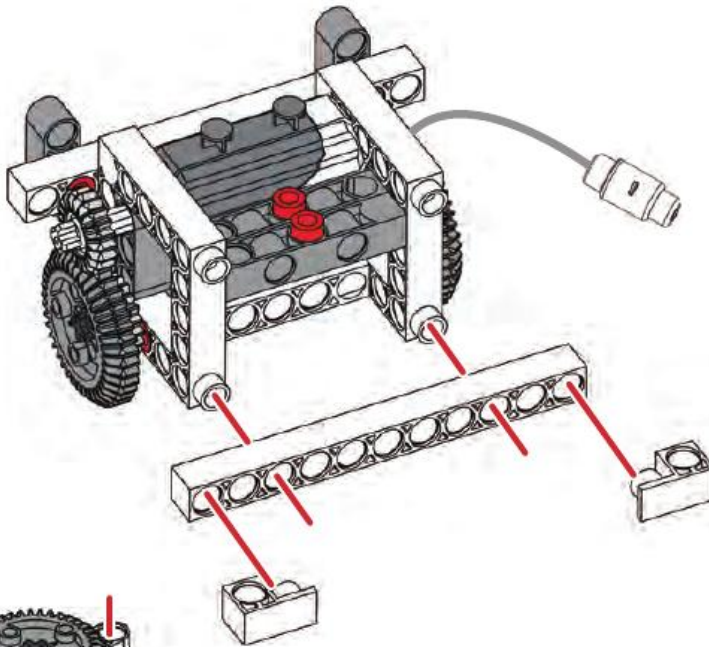


16

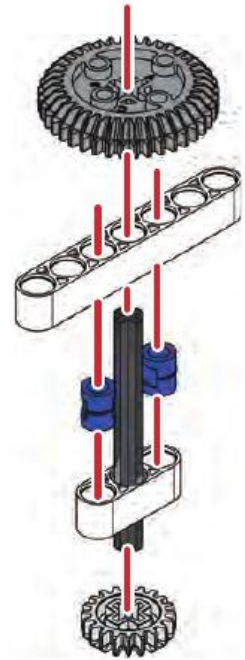




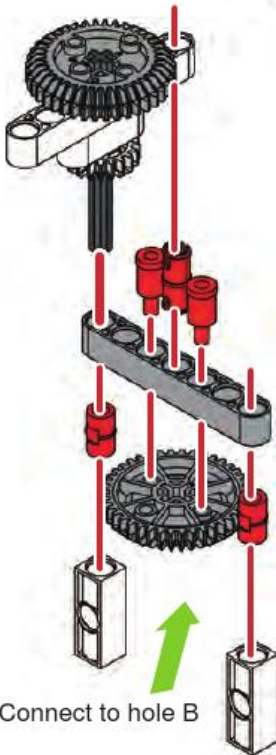
17



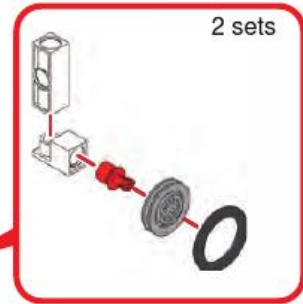
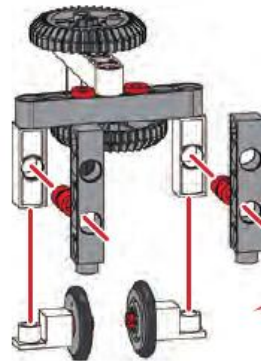
18



19



20

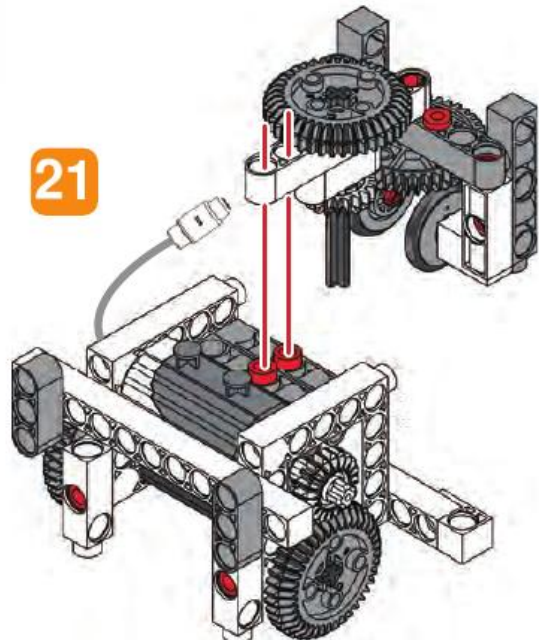


### Assembly reminders

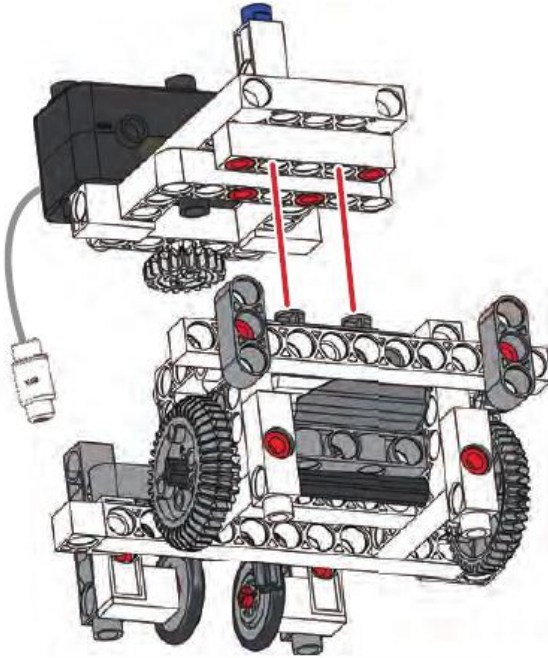
Pay attention to the labels and positioning of the English letters on the gear holes as they are helpful in the assembly process.



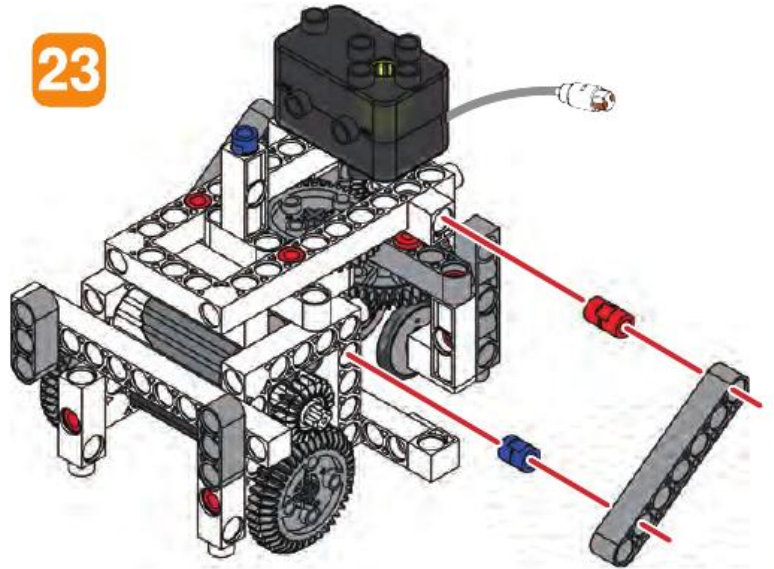
21



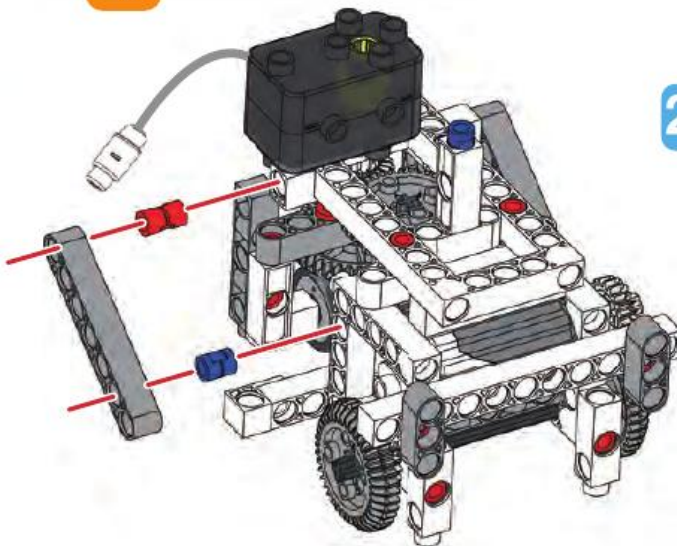
22



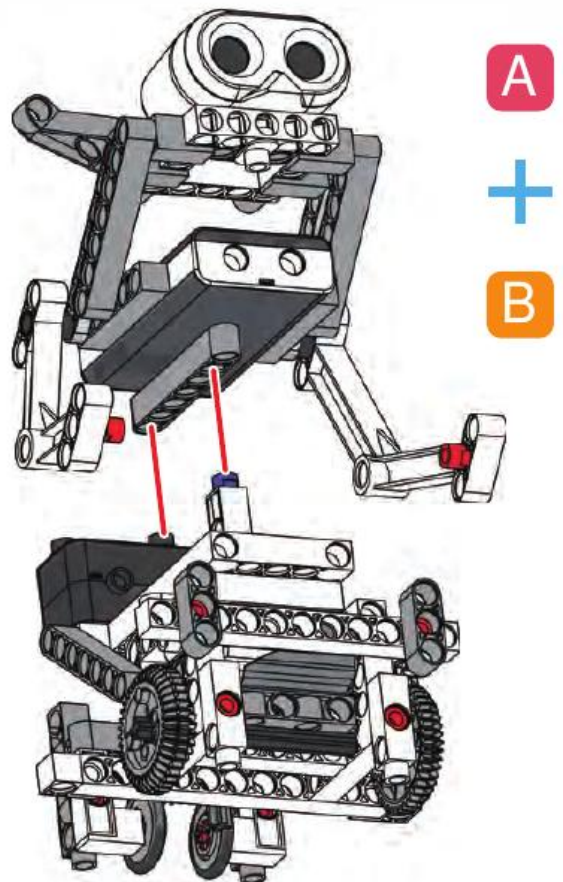
23



24



25



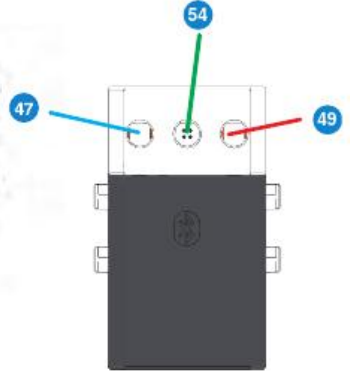
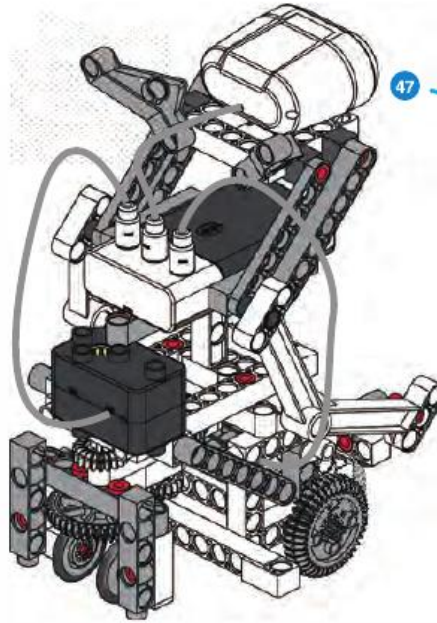
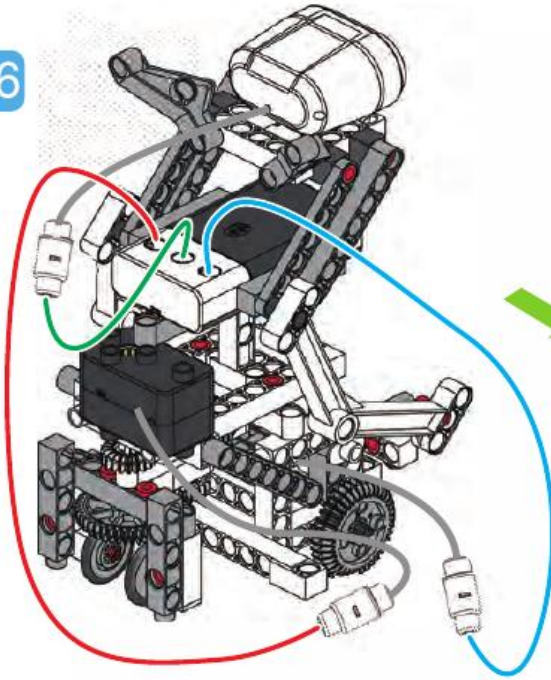
A

+

B



26



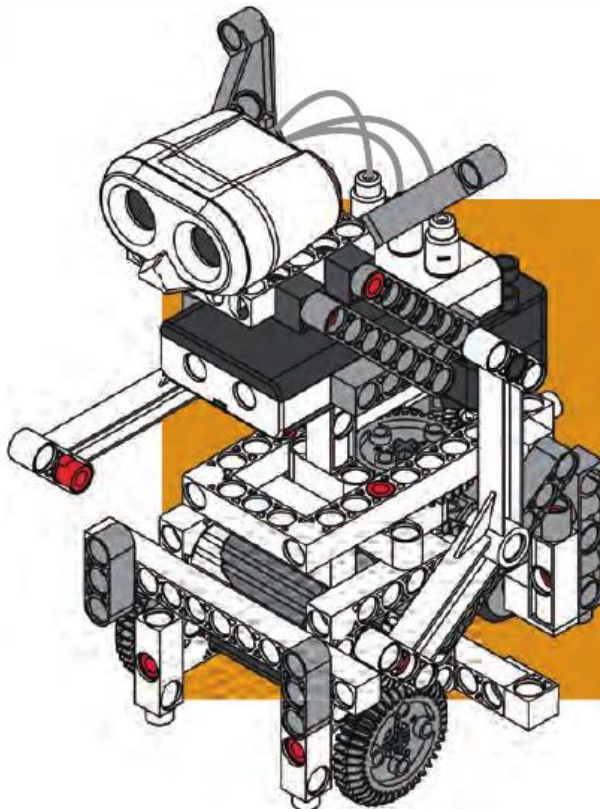
47 Planetary gear motor box's wire



54 Ultrasonic sensor's wire

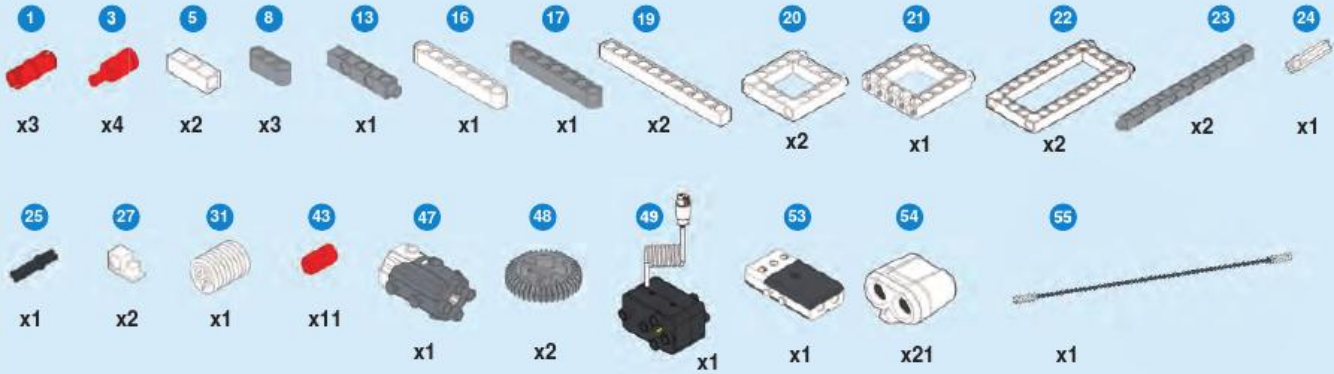


49 40X motor's wire



COMPLETE





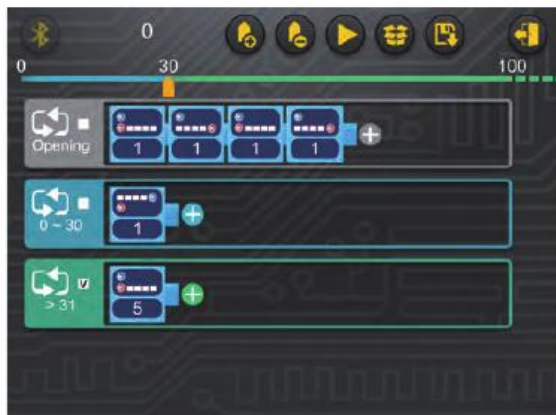
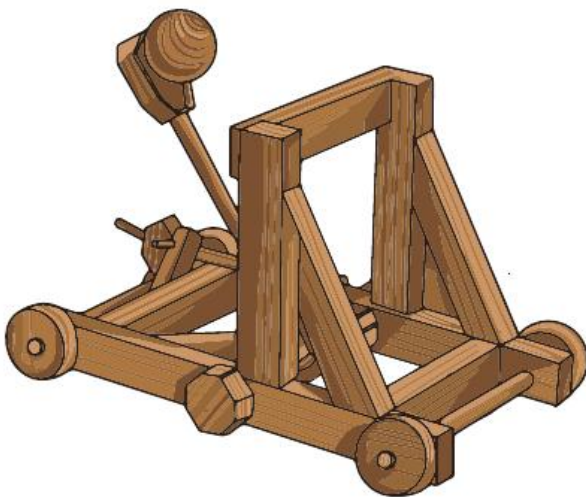
### Catapult

The catapult allows for a fun game. After a program is written, it can scan for intruding enemies! When the enemy draws near, aim and fire!

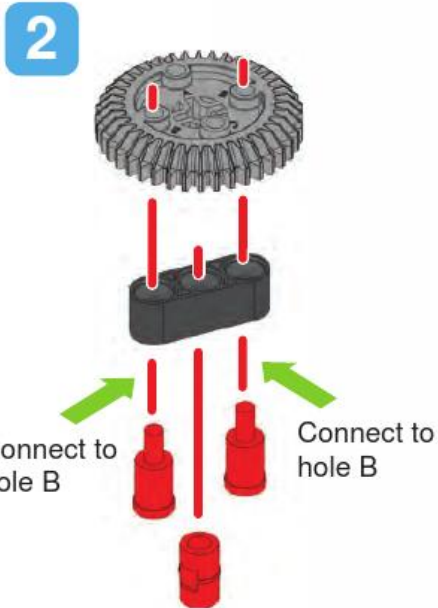
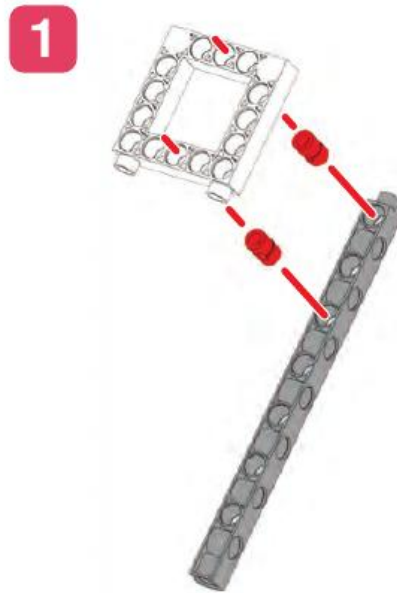
Try it. Can you sneak in undetected?

Caution

Don't aim to the eyes



※ This program is preloaded in the app under Program 1. You can edit with your own programs and music.



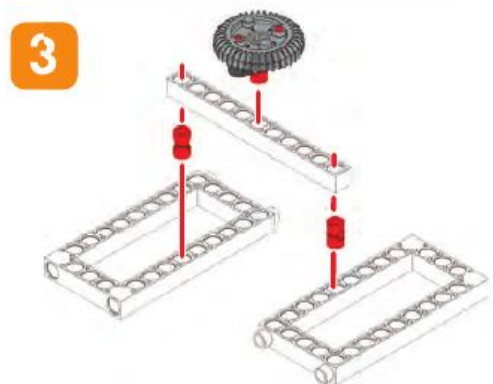
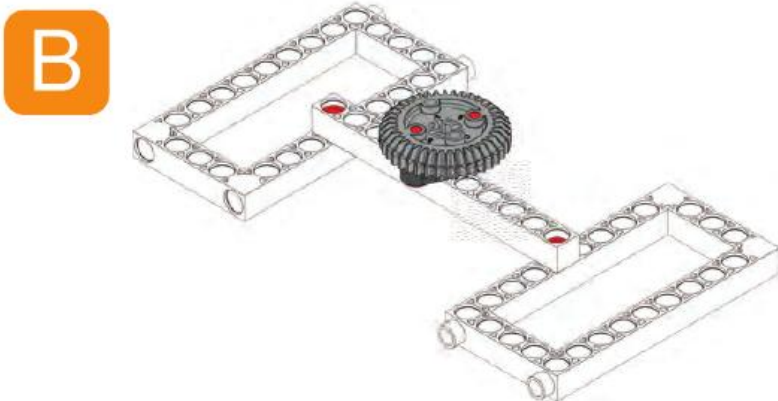
Assembly reminders  
Pay attention to the labels and positioning of the English letters on the gear holes as they are helpful in the assembly process.

Hole A

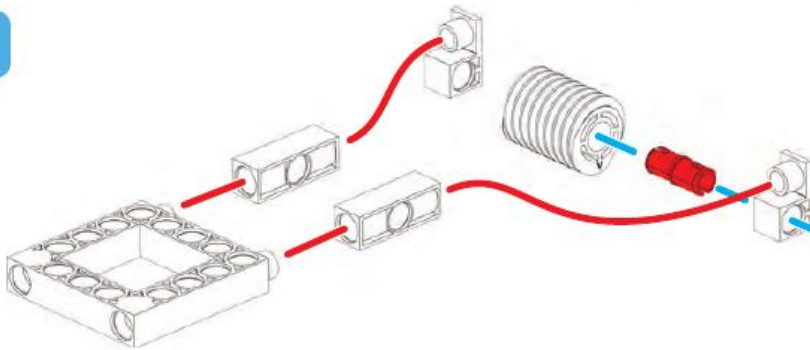
Hole B

Hole B

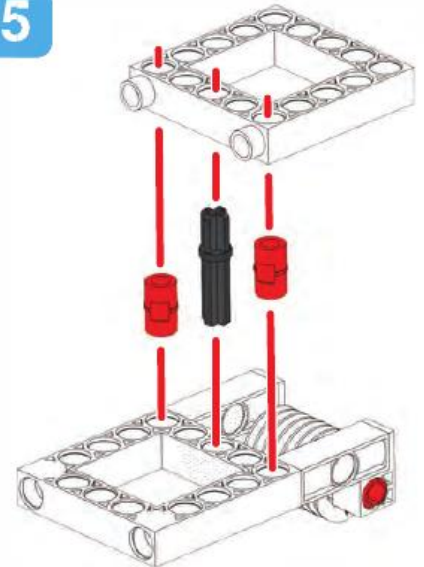
Hole C



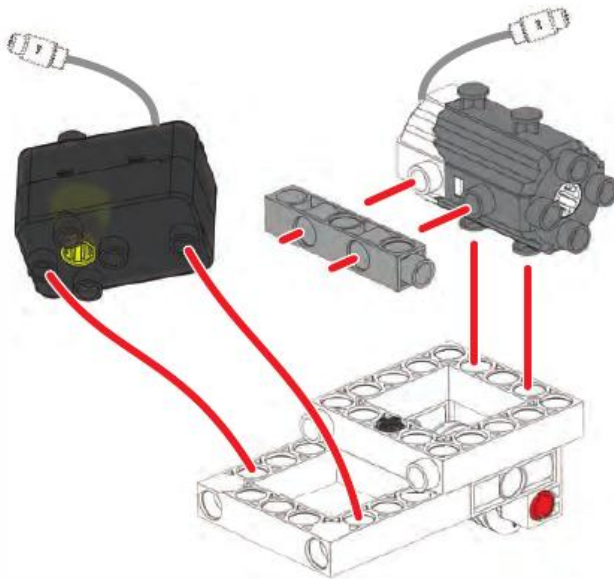
4



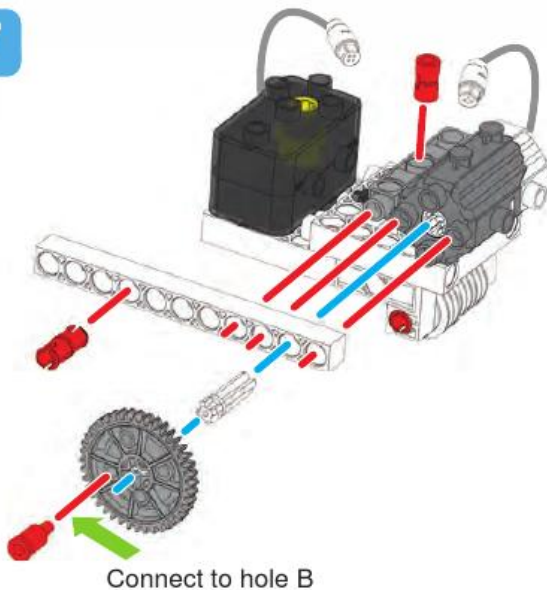
5



6

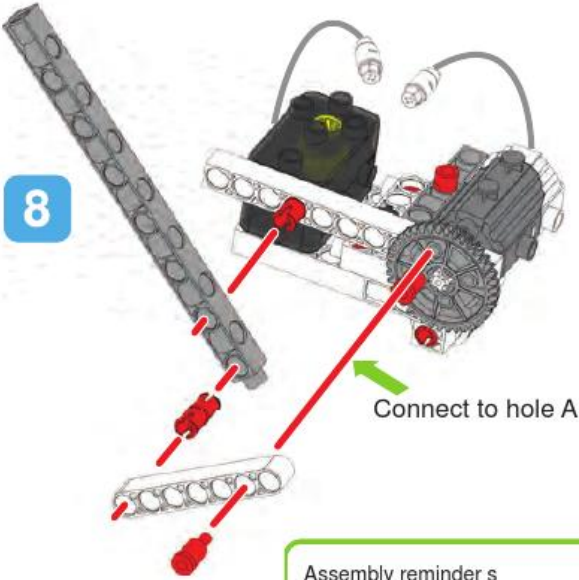


7



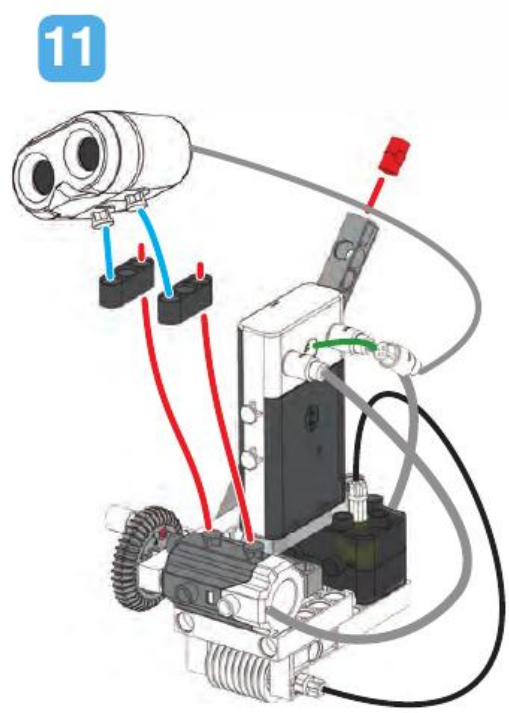
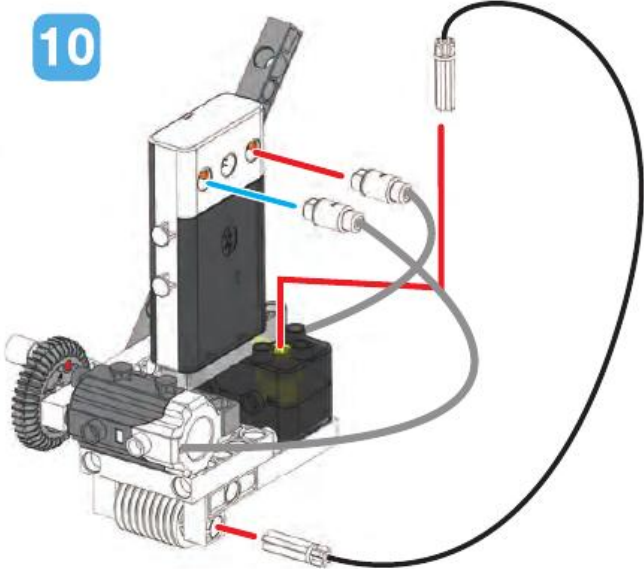
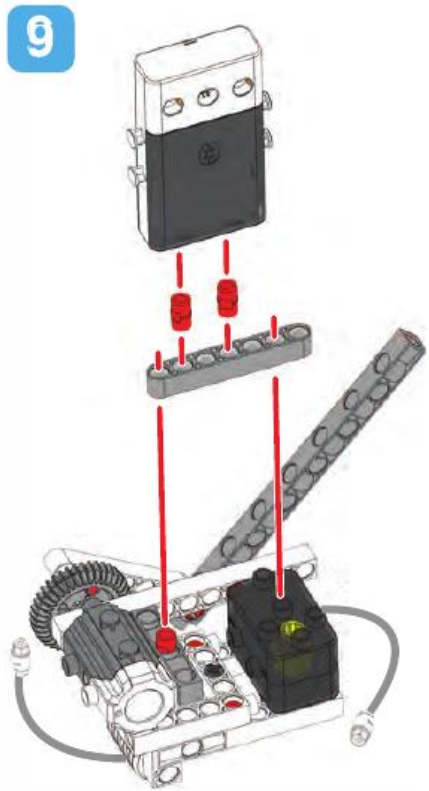
Connect to hole B

Assembly reminders  
Pay attention to the labels and positioning of the English letters on the gear holes as they are helpful in the assembly process.



Assembly reminder s  
Pay attention to the labels and positioning of the English letters on the gear holes as they are helpful in the assembly process.

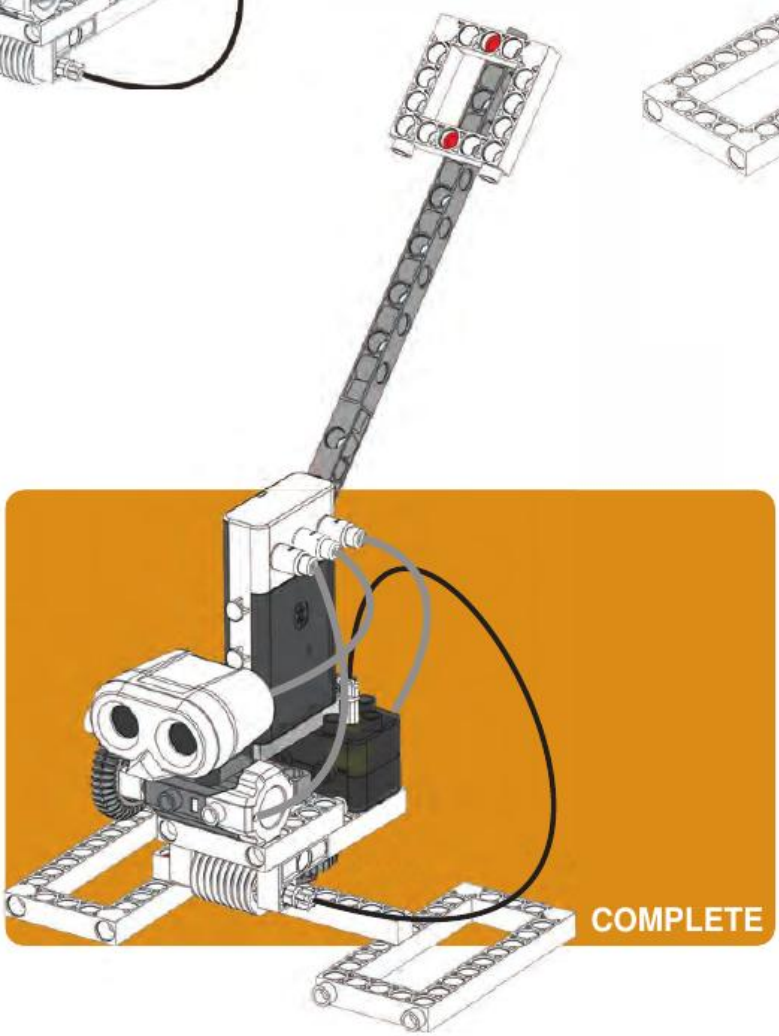
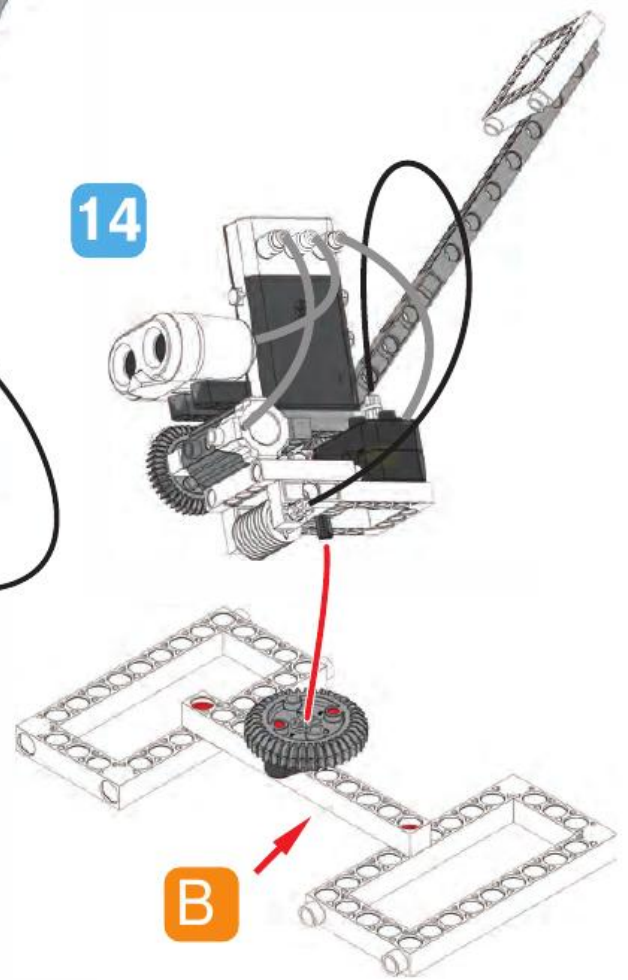
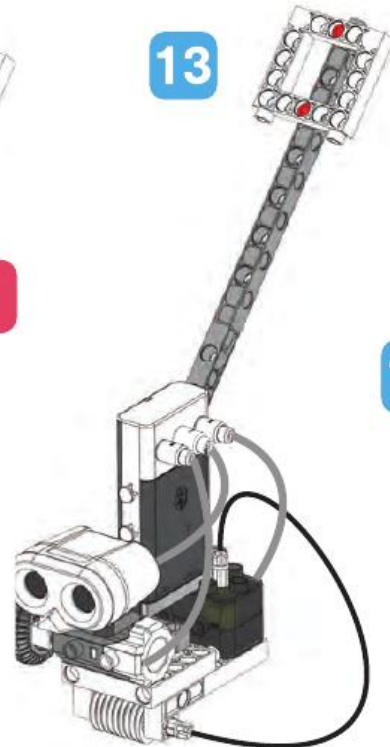
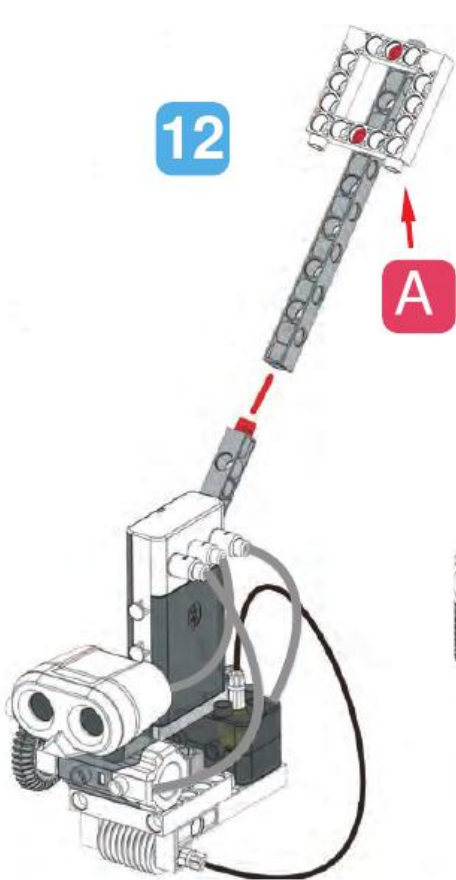
Hole A



47 Planetary gear motor box's wire

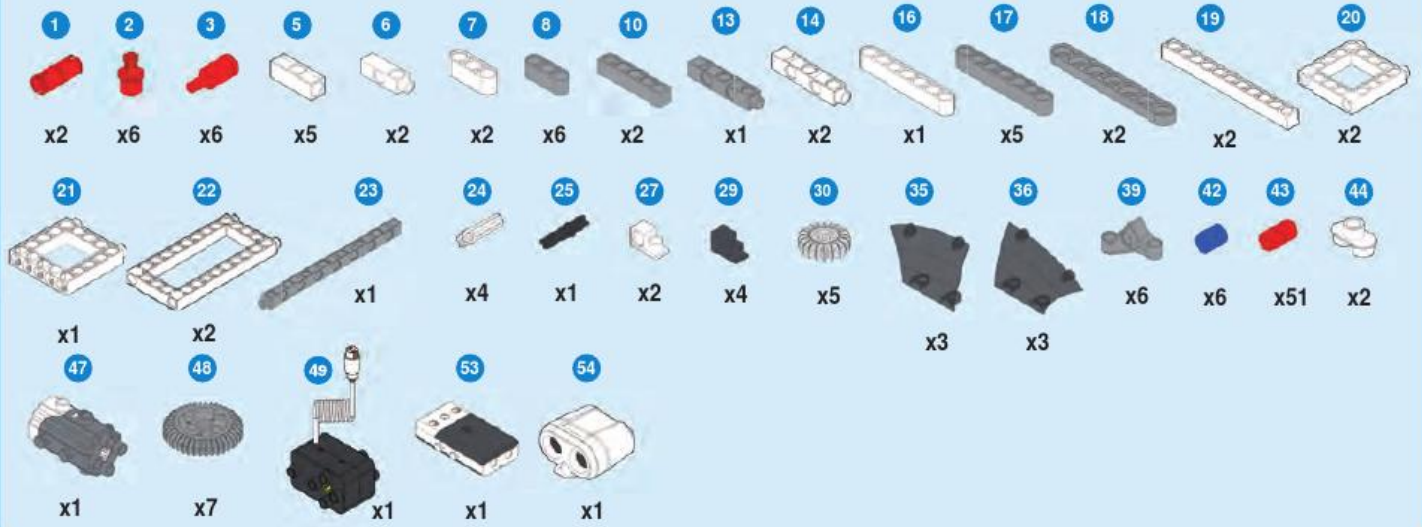
54 Ultrasonic sensor's wire

49 40X motor's wire





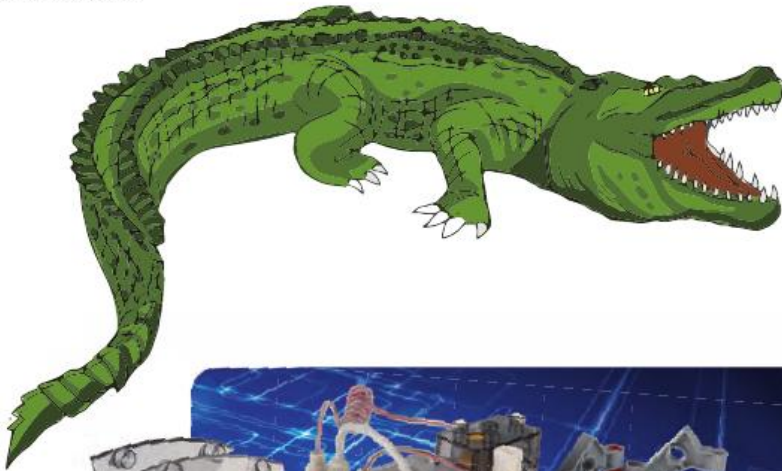
## King Crocodile Model 3



## King Crocodile

This mechanical crocodile program makes it shake its tail as a warning. When an obstacle draws near, it opens its mouth to scare off enemies.

Crocodiles give the impression of being scary and aggressive animals. Many movies use crocodiles as a horror theme. Few people know that crocodiles have a very strong immune system. Scientists have found that the strong immune system of crocodiles can destroy the Aids virus (HIV) and that some proteins in the blood of crocodiles can kill Staphylococcus aureus.

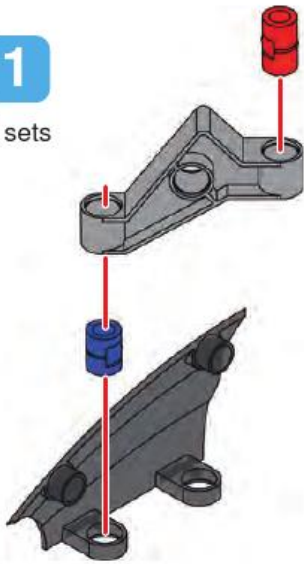


※ This program is preloaded in the app under Program 2. You can edit with your own programs and music.



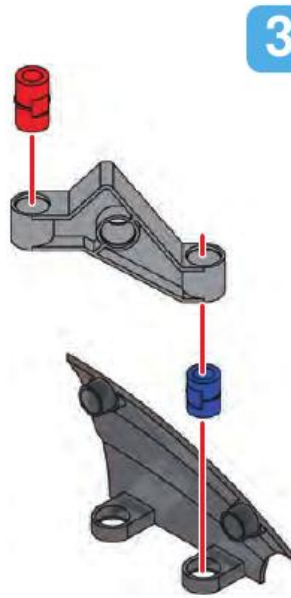
1

2 sets

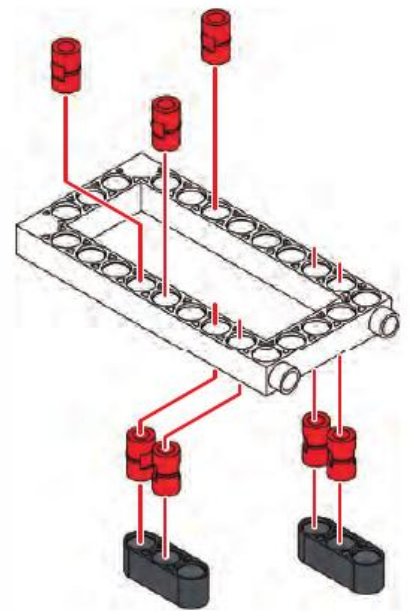


2

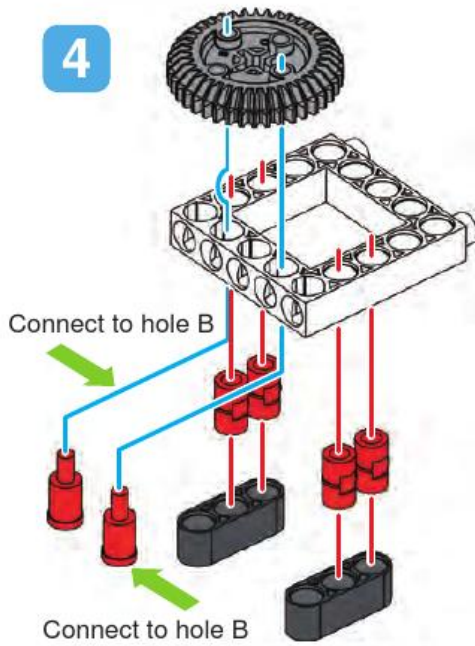
2 sets



3



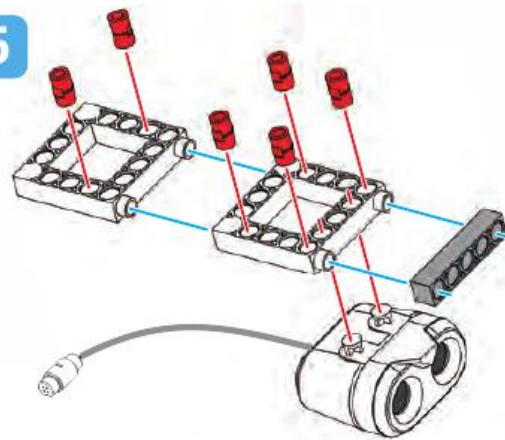
4



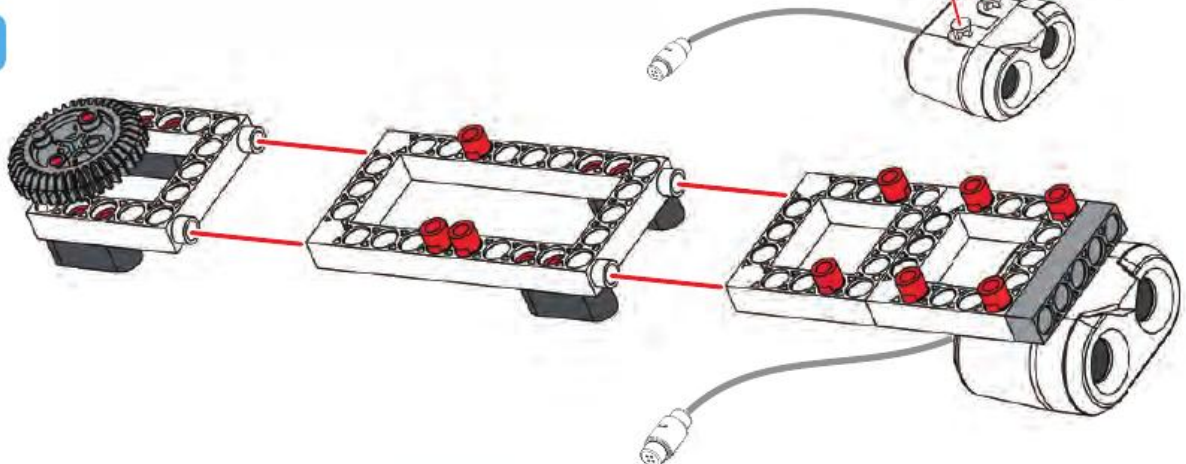
Assembly reminders  
Pay attention to the labels and positioning of the English letters on the gear holes as they are helpful in the assembly process .



5



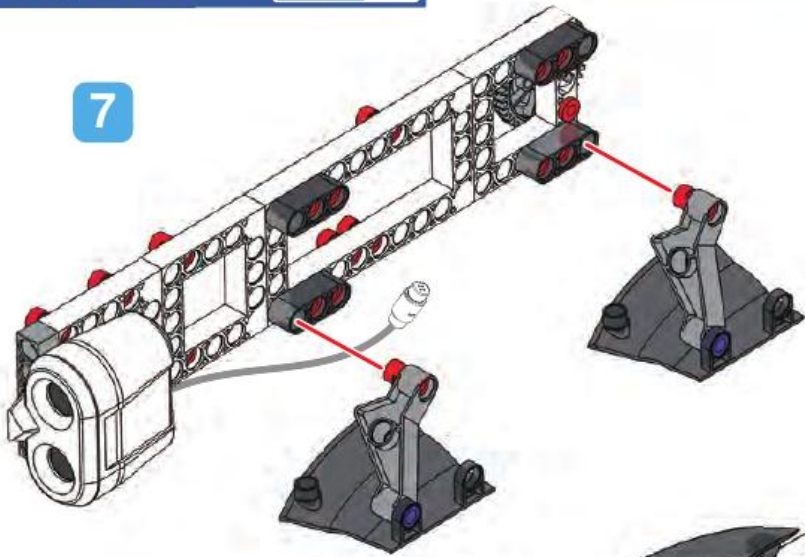
6



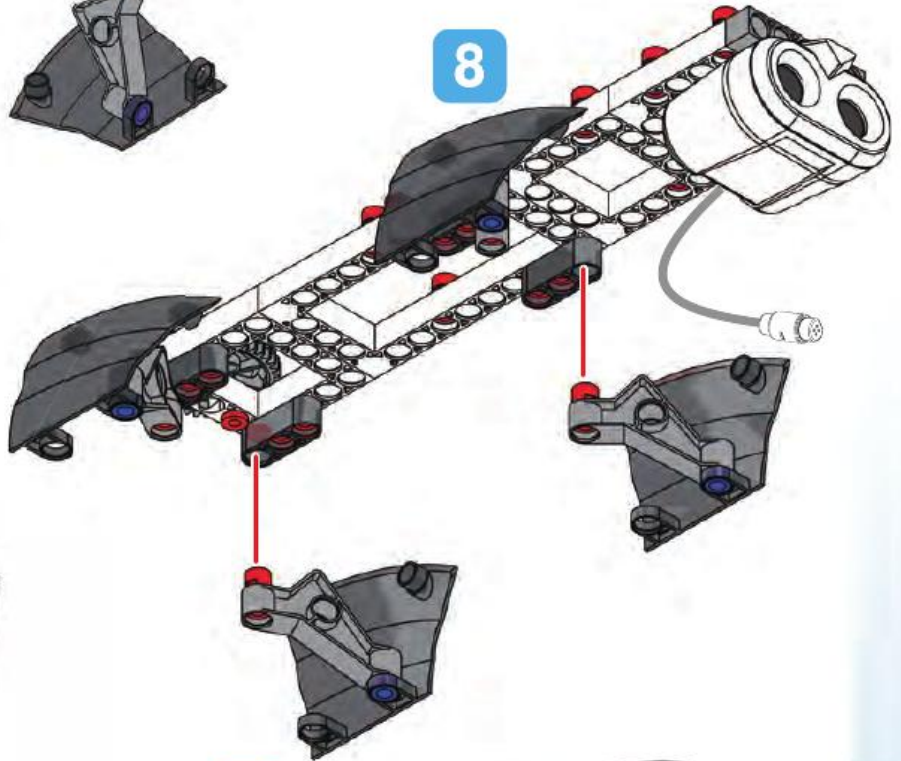


## King Crocodile Model 3

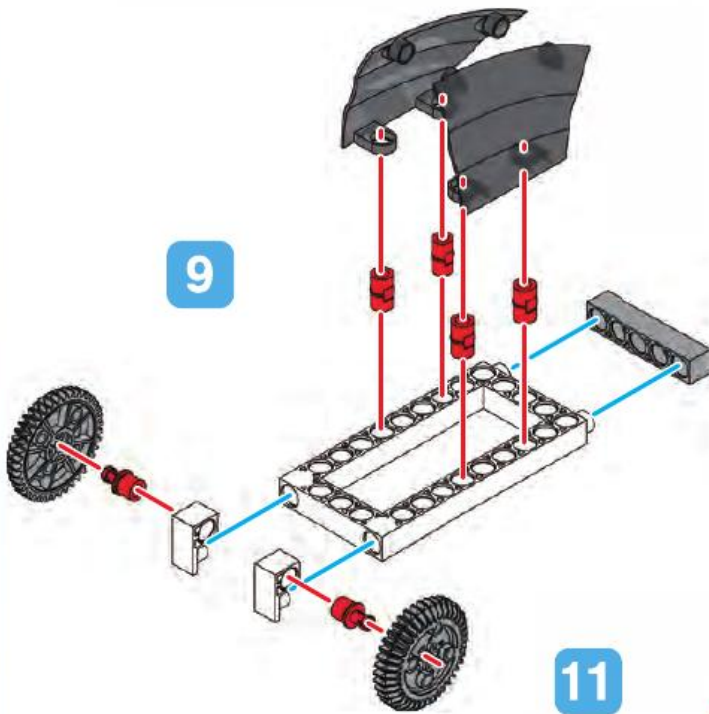
7



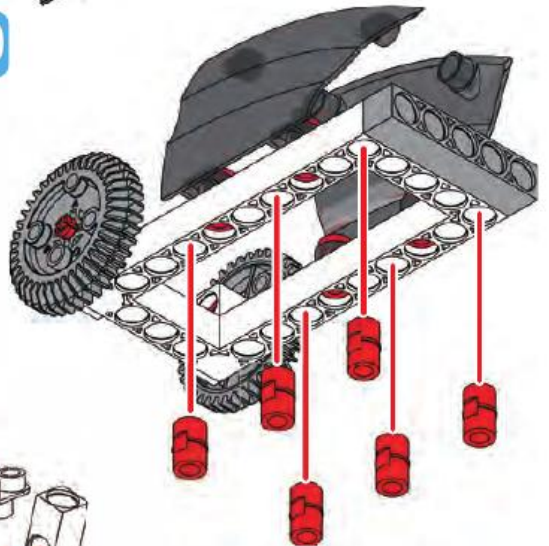
8



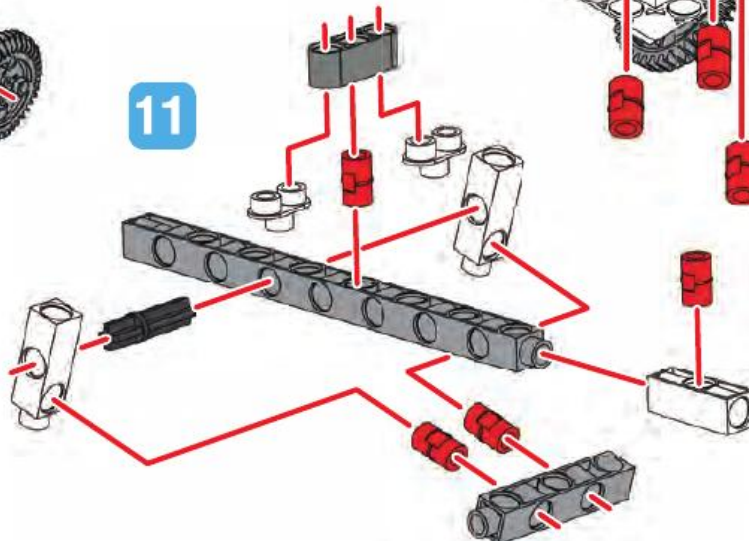
9



10



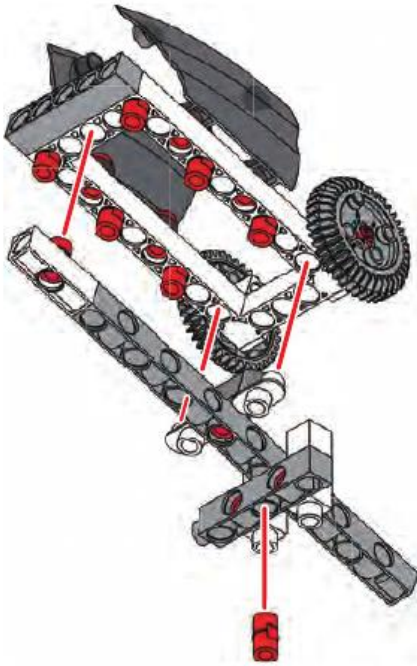
11



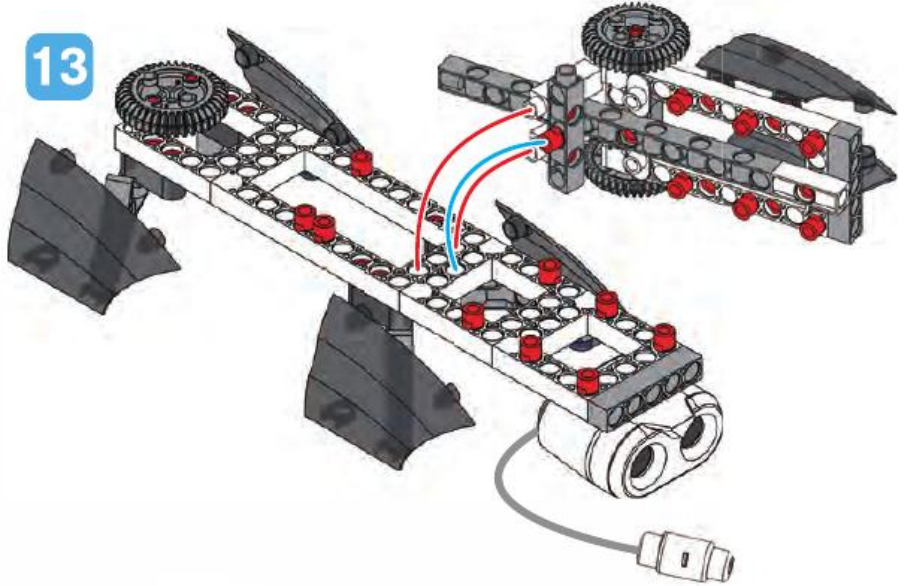




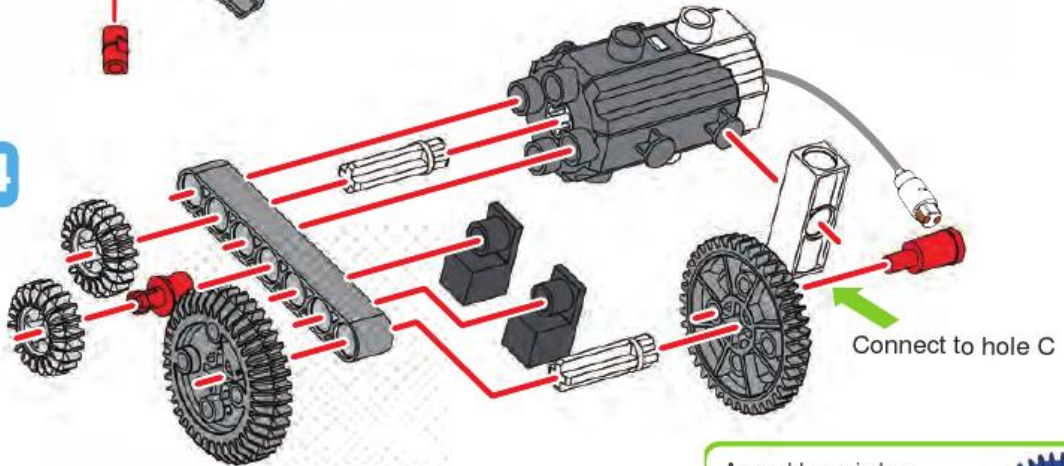
12



13

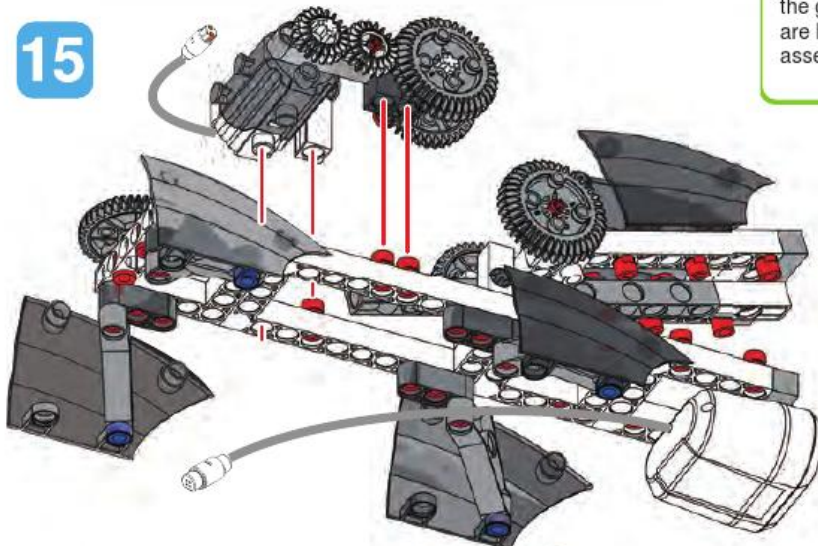


14



Connect to hole C

15



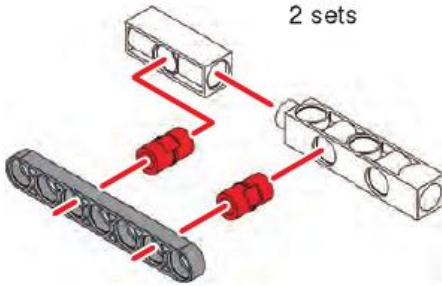
Assembly reminder s  
Pay attention to the  
labels and positioning  
of the English letters on  
the gear holes as they  
are helpful in the  
assembly process.



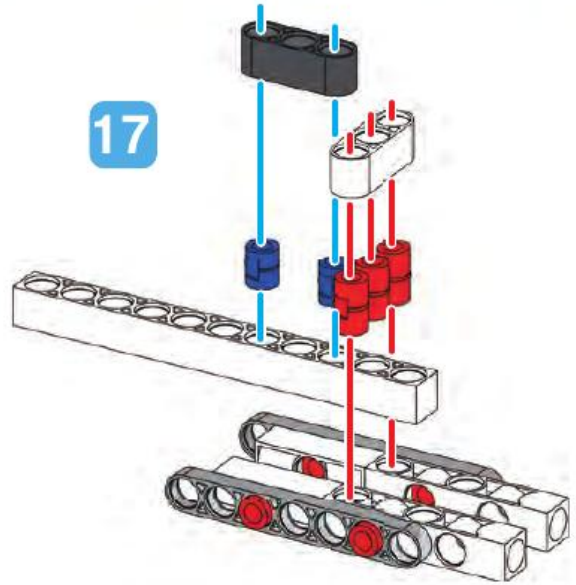


16

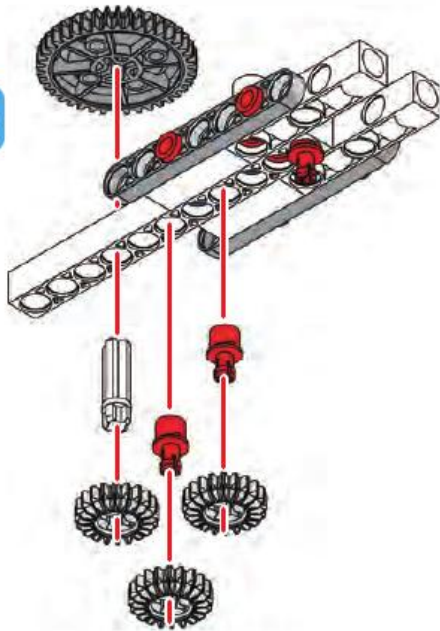
2 sets



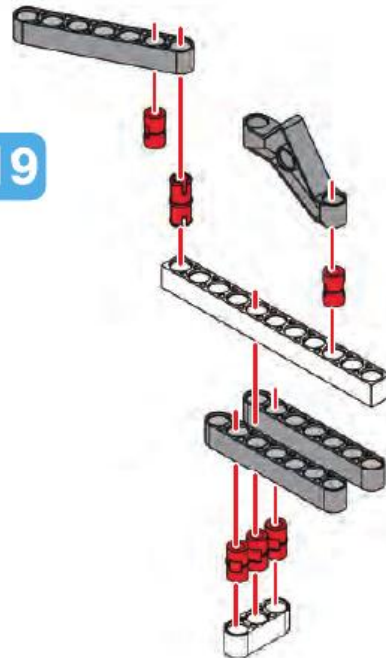
17



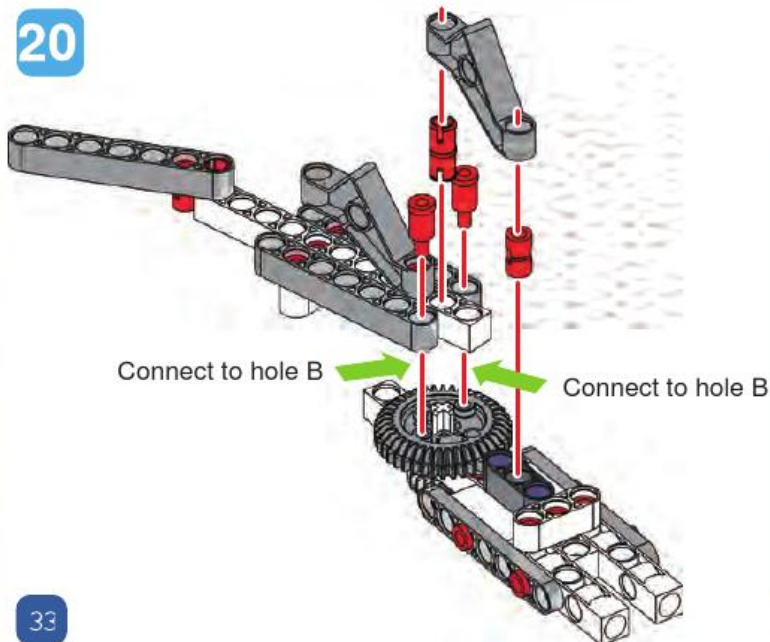
18



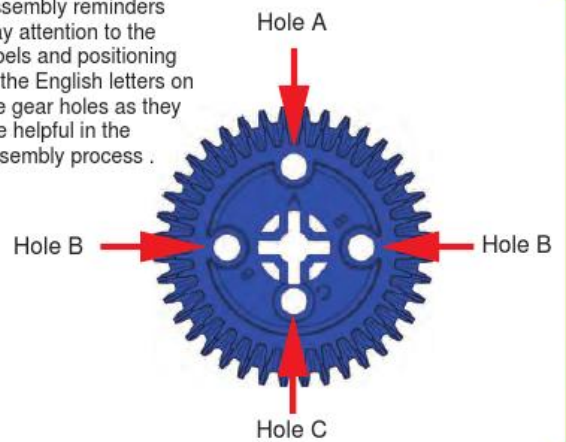
19



20

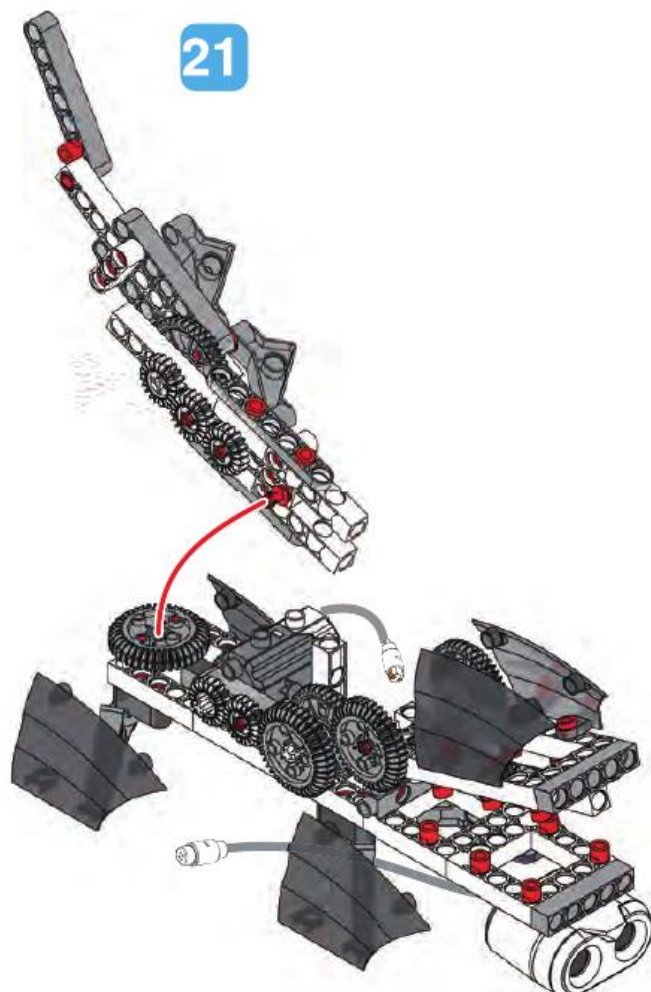


Assembly reminders  
Pay attention to the labels and positioning of the English letters on the gear holes as they are helpful in the assembly process.

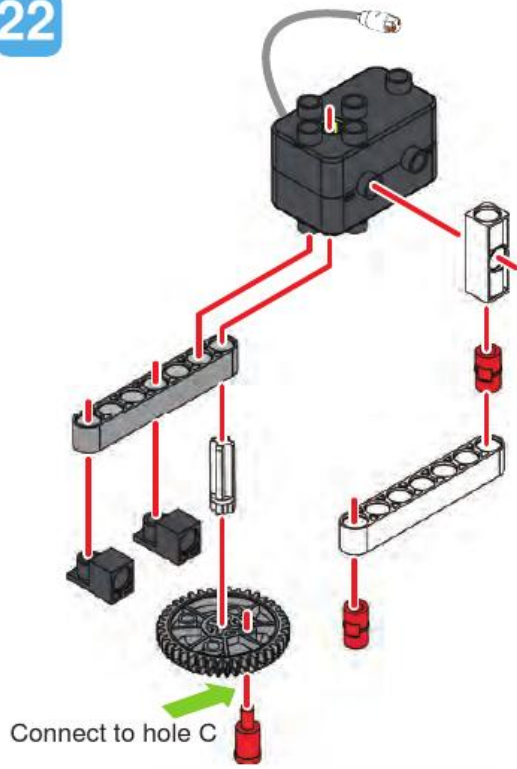




21



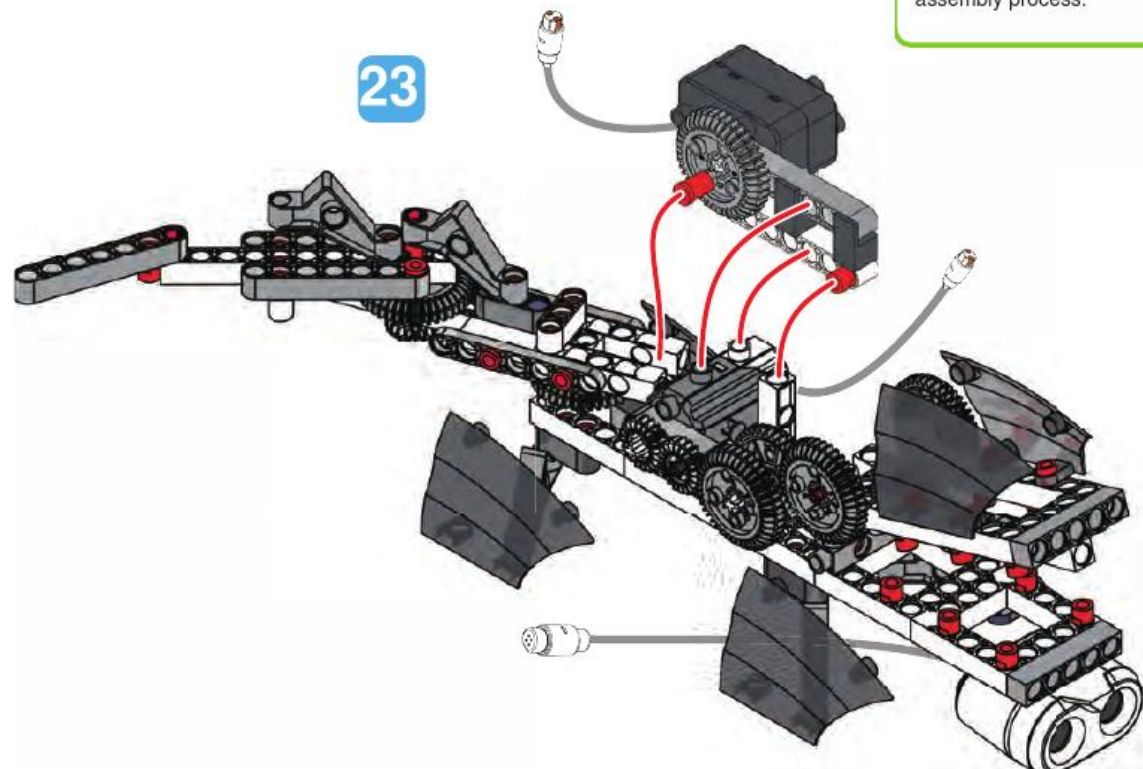
22



Assembly reminder s  
Pay attention to the  
labels and positioning  
of the English letters on  
the gear holes as they  
are helpful in the  
assembly process.

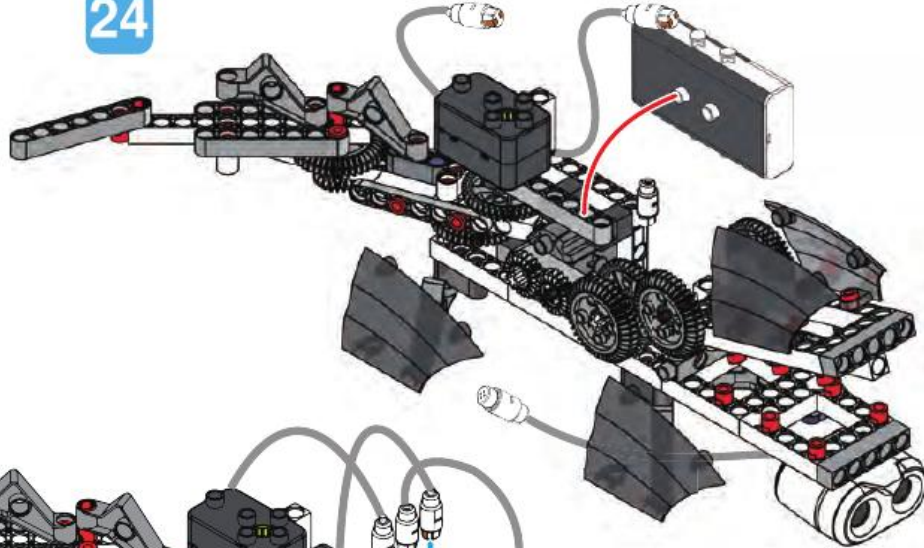


23

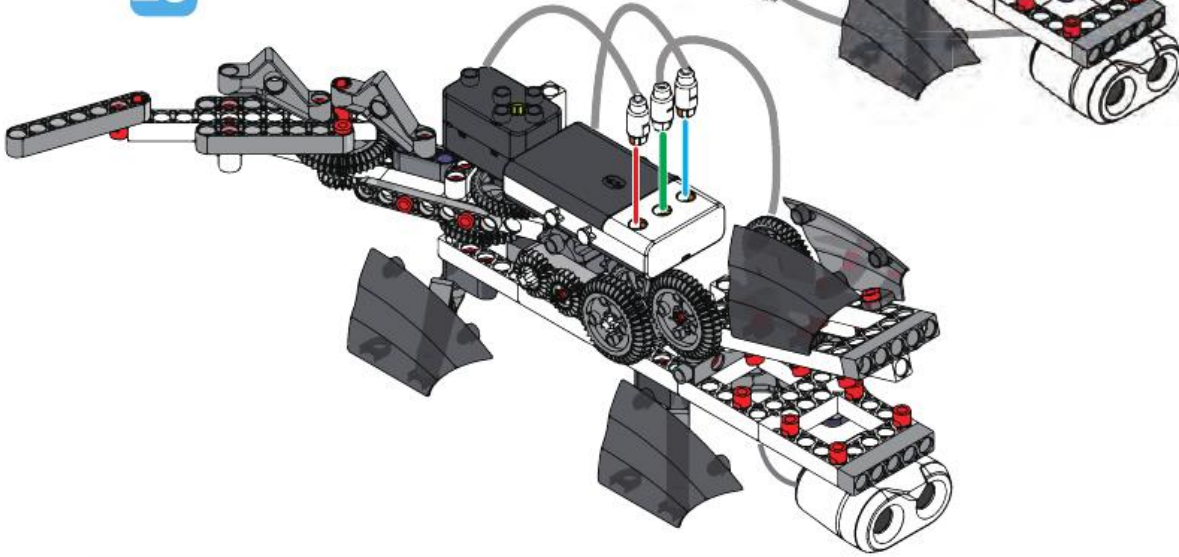




24



25



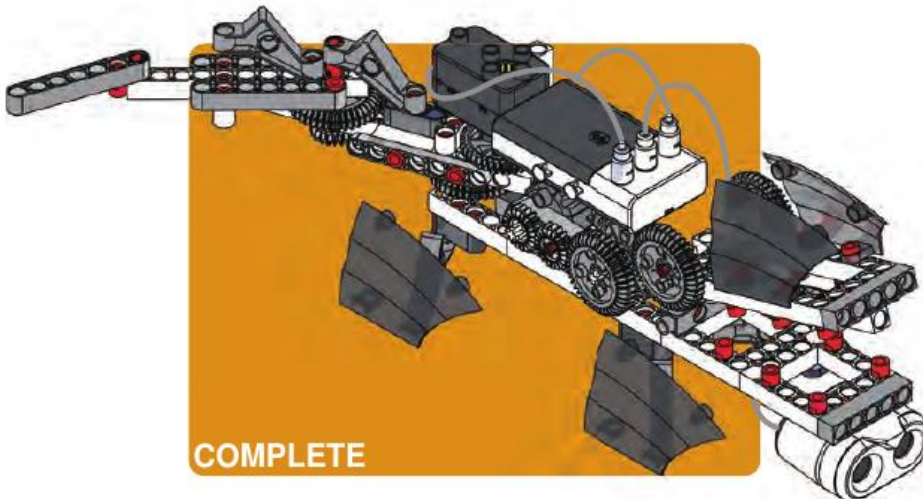
47 Planetary gear motor box's wire

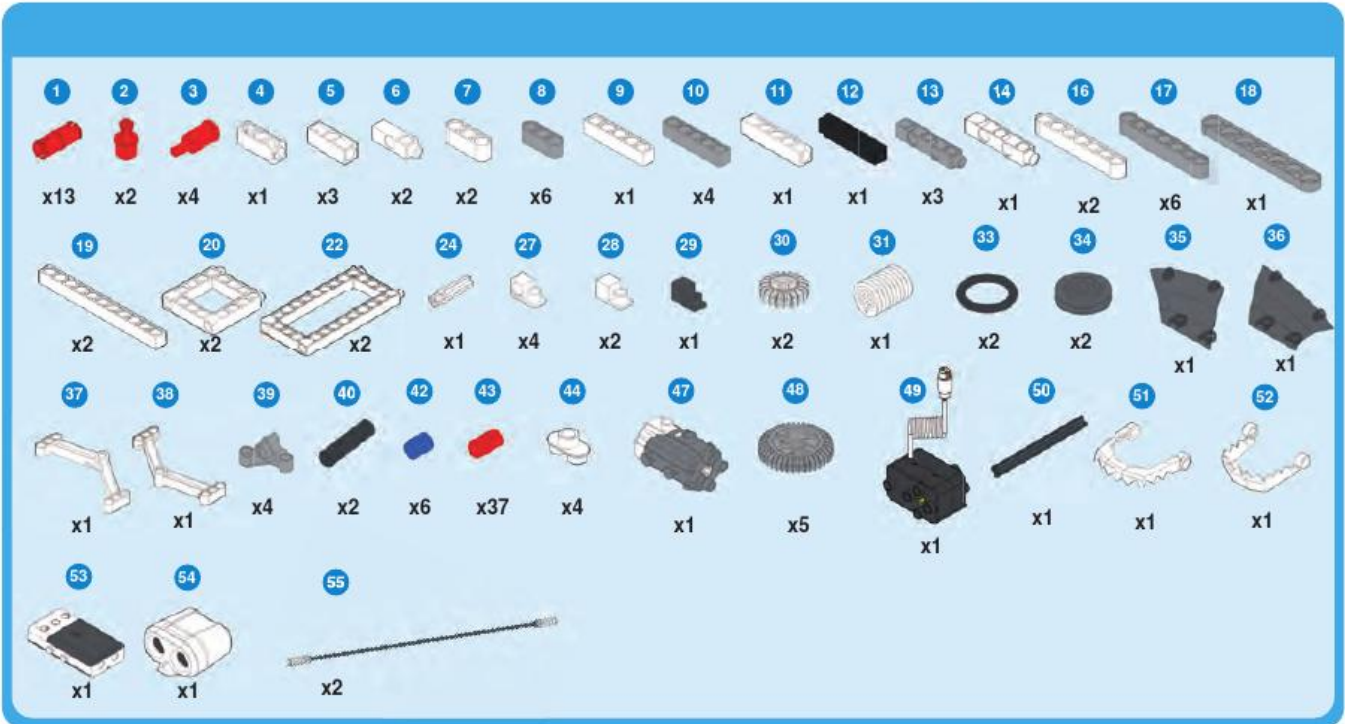


54 Ultrasonic sensor's wire



49 40X motor's wire

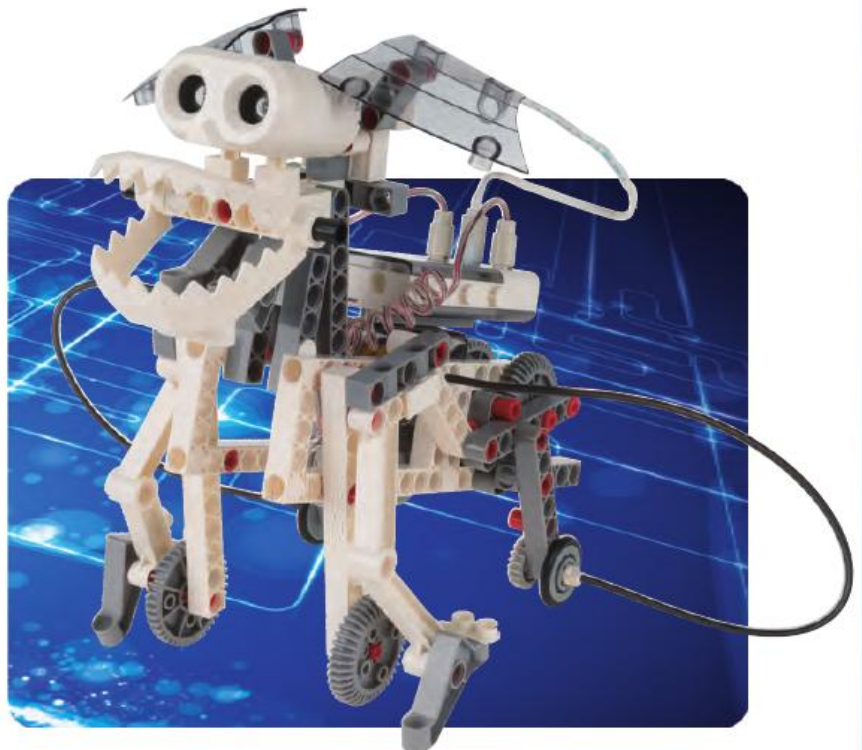




### Mechanical Dog

You can write a program to make this mechanical dog go forwards and backwards. It will go towards you and sit down in front of you.

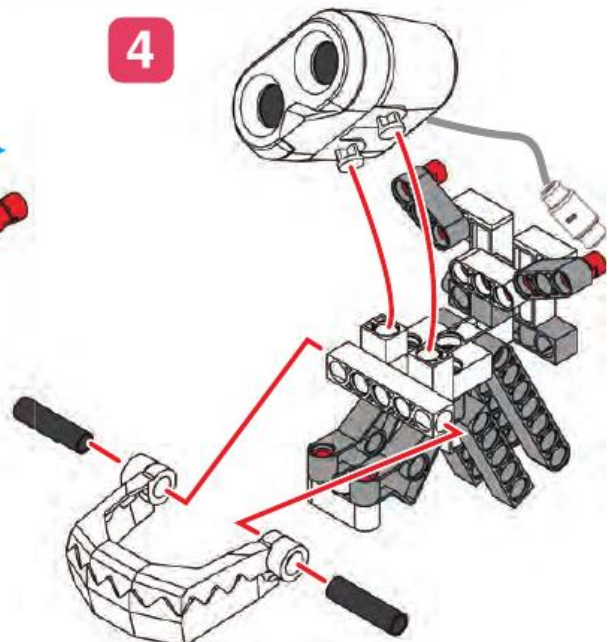
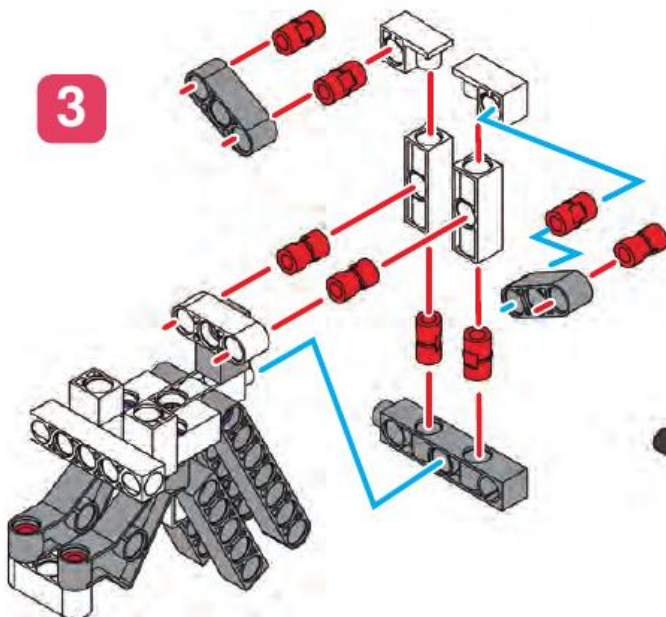
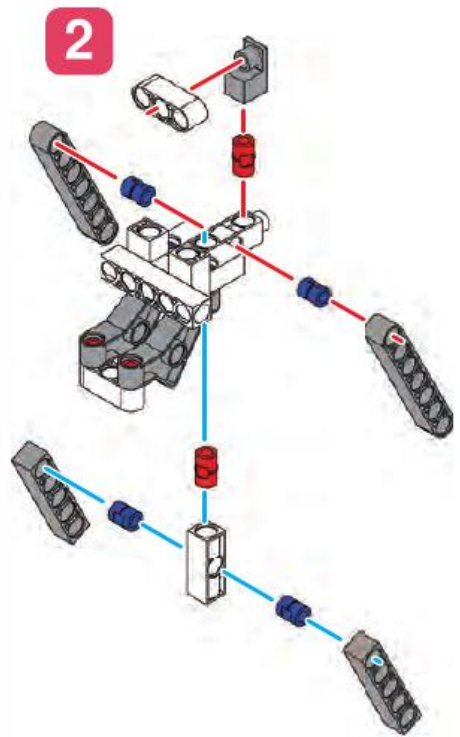
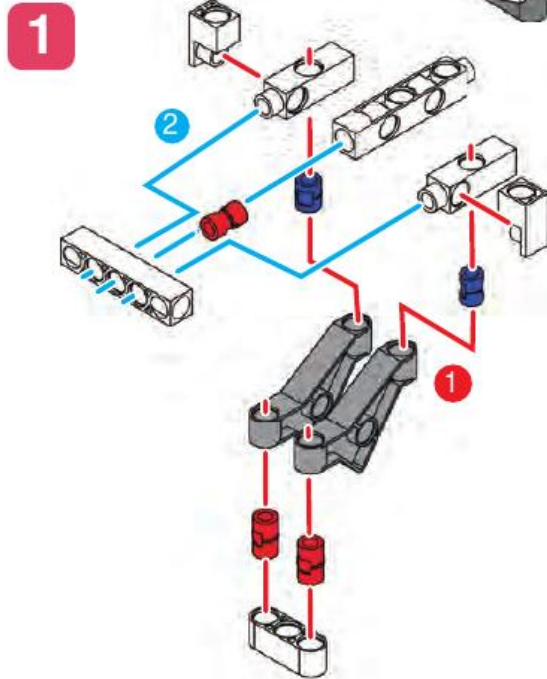
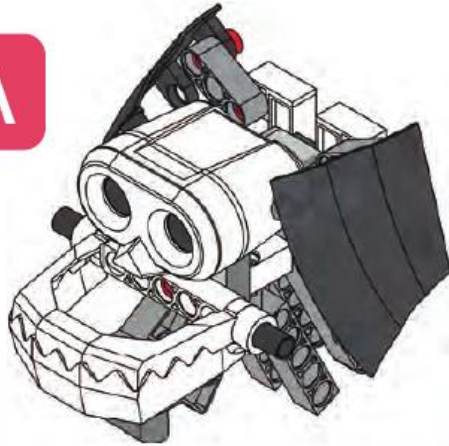
Many mechanical pet products have been trending in the world. Aside from being new and fun, many people think that mechanical pets have advantages, such as not needing to clean up after them.



※ This program is preloaded in the app under Program 3. You can edit with your own programs and music.

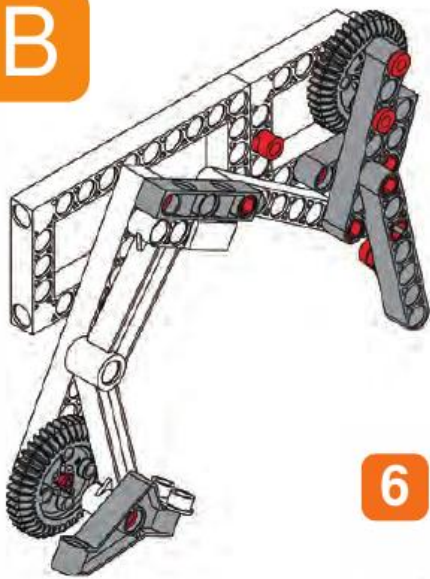


### A

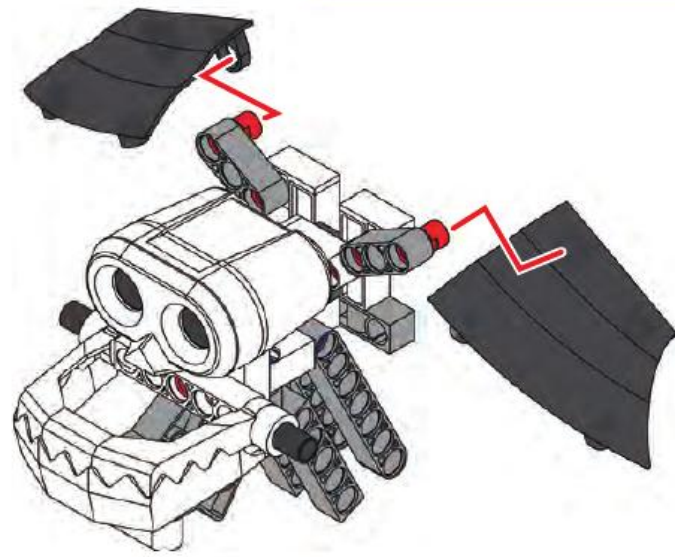




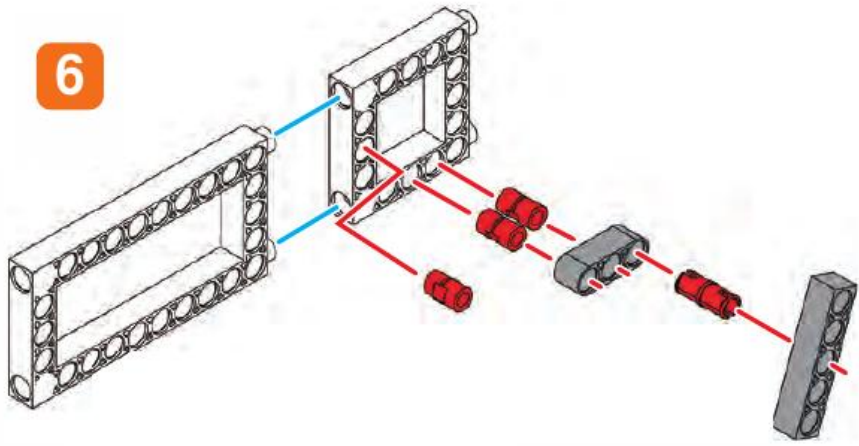
**B**



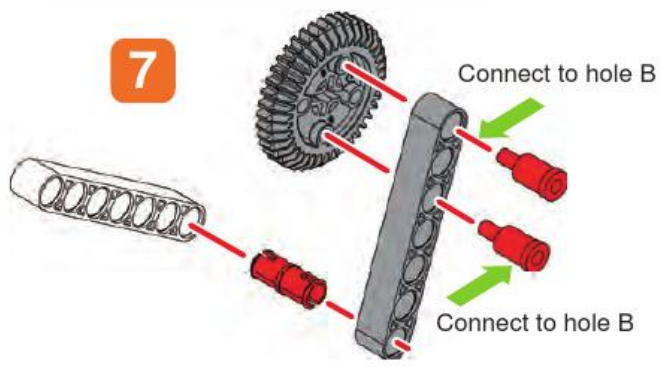
**5**



**6**

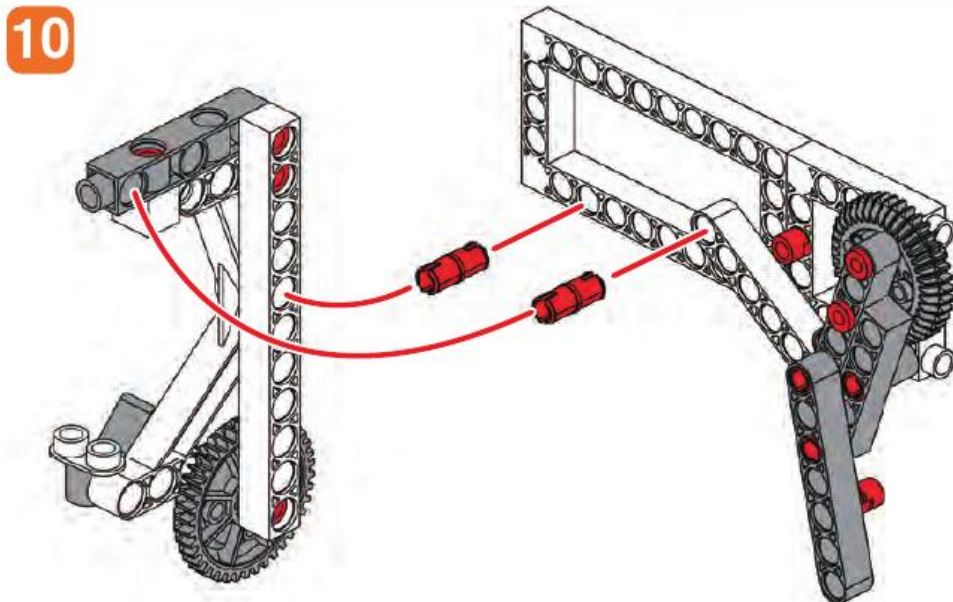
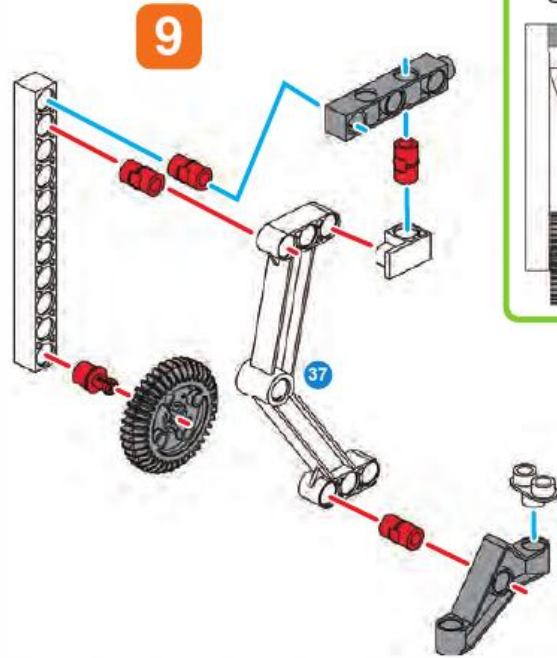
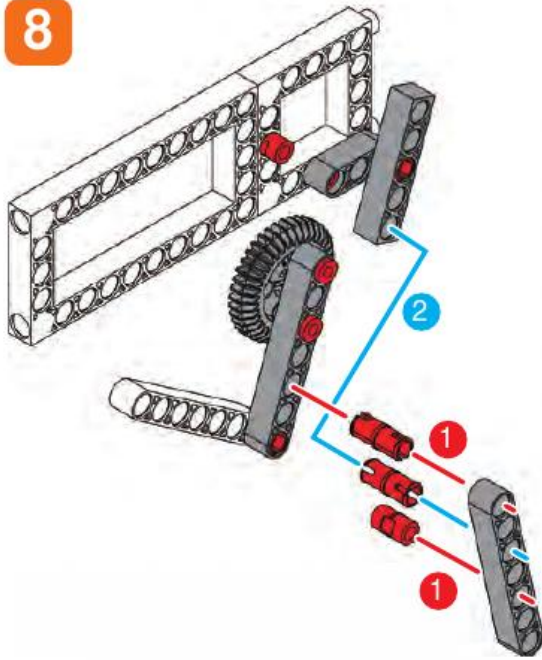


**7**



Assembly reminders  
Pay attention to the labels and positioning of the English letters on the gear holes as they are helpful in the assembly process.

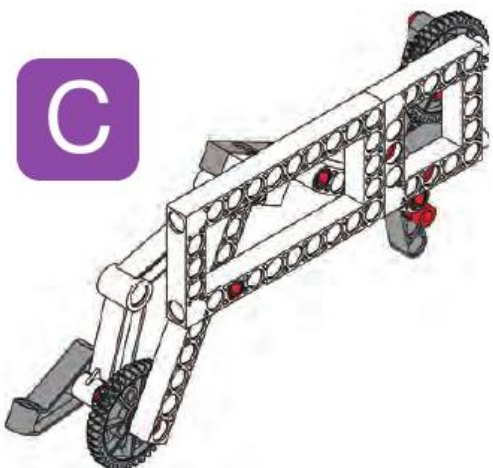
Hole A  
Hole B  
Hole B  
Hole C



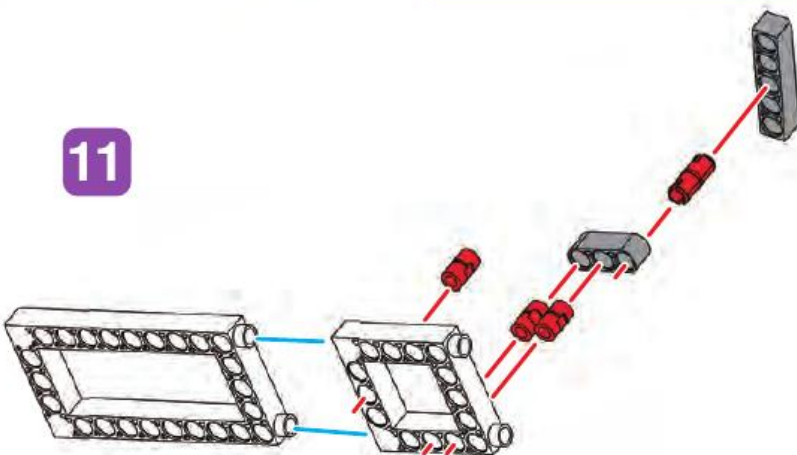




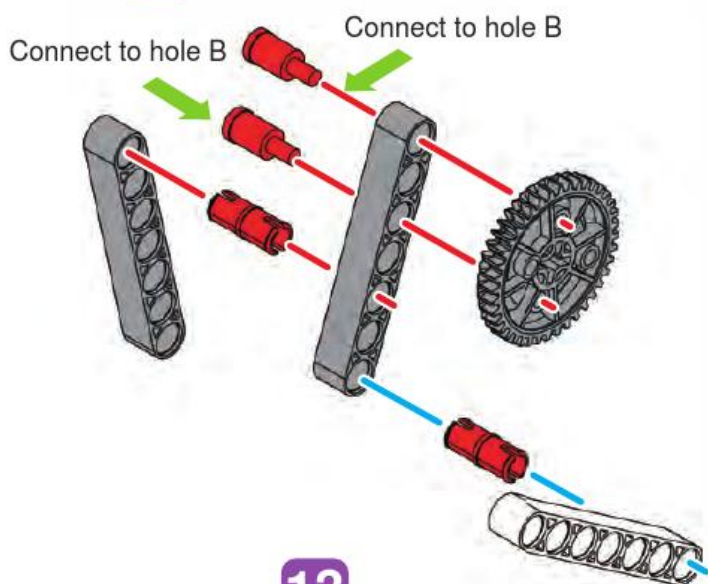
### C



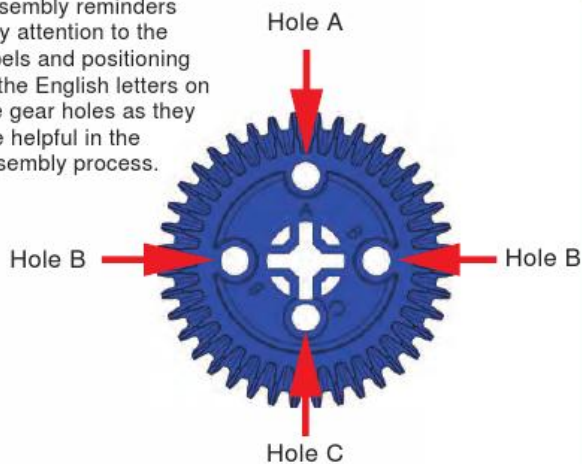
### 11



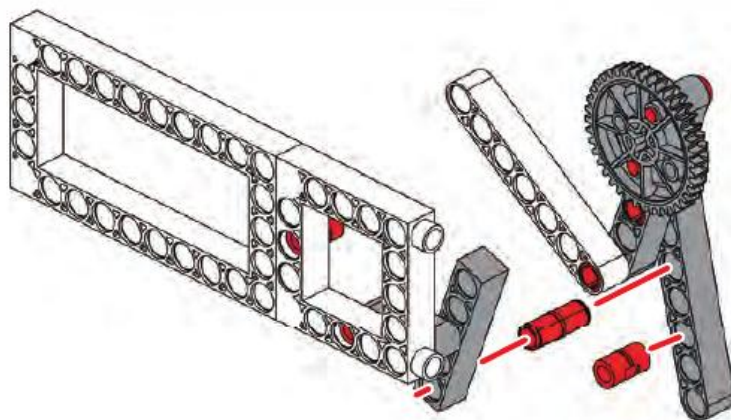
### 12

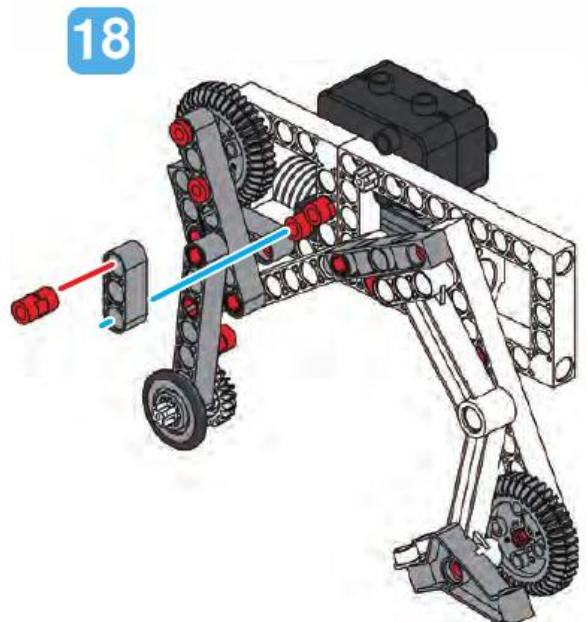
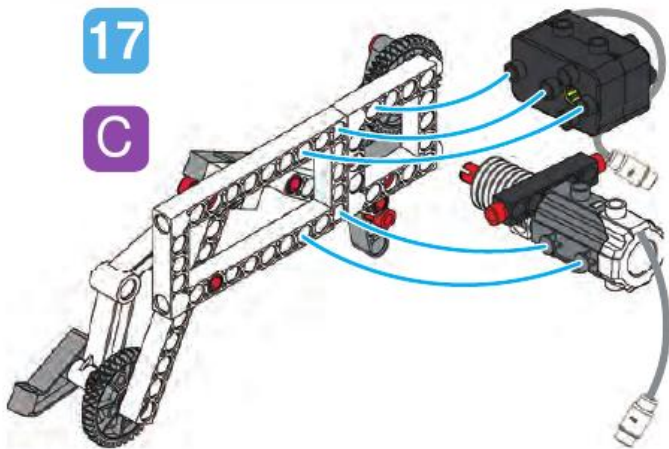
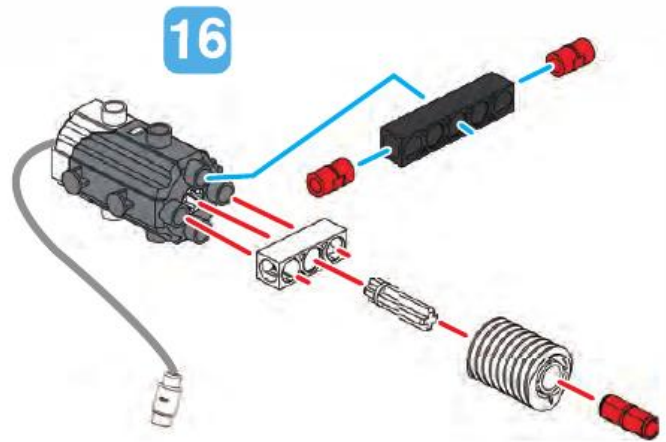
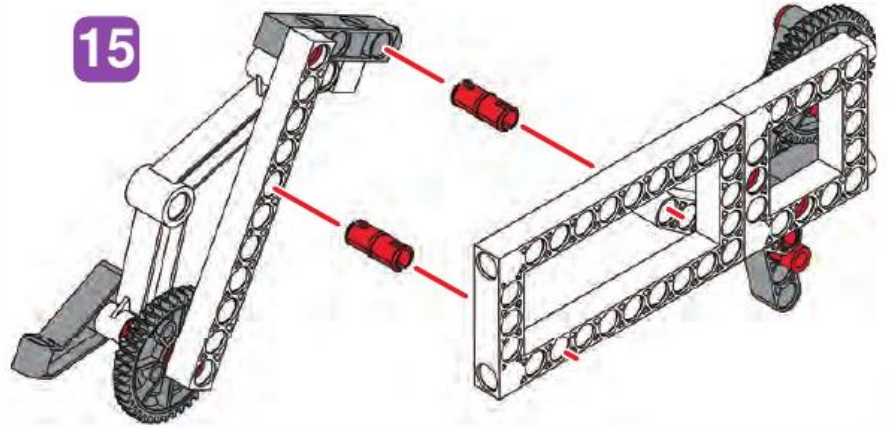
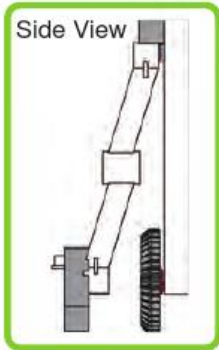
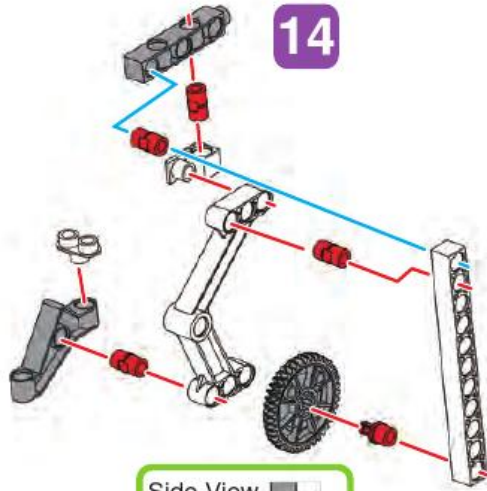


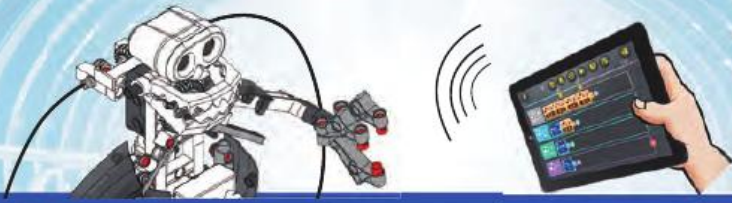
Assembly reminders  
Pay attention to the labels and positioning of the English letters on the gear holes as they are helpful in the assembly process.



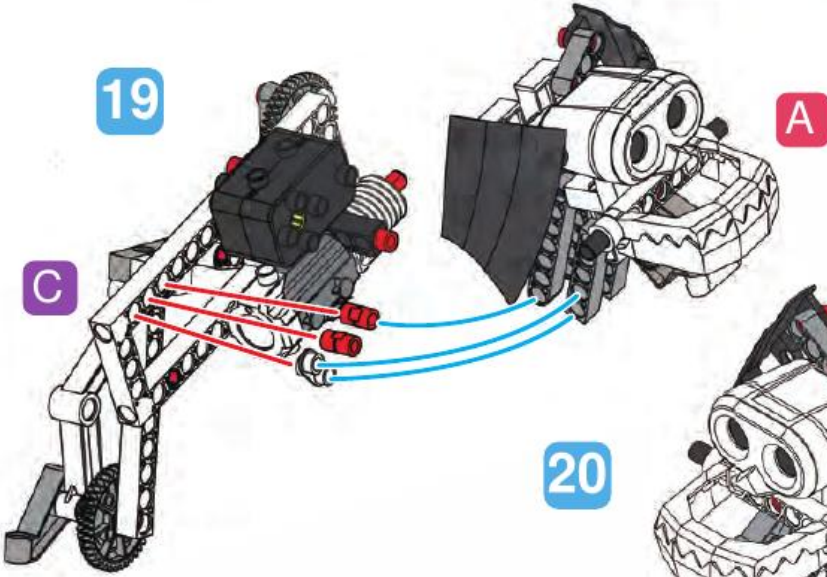
### 13



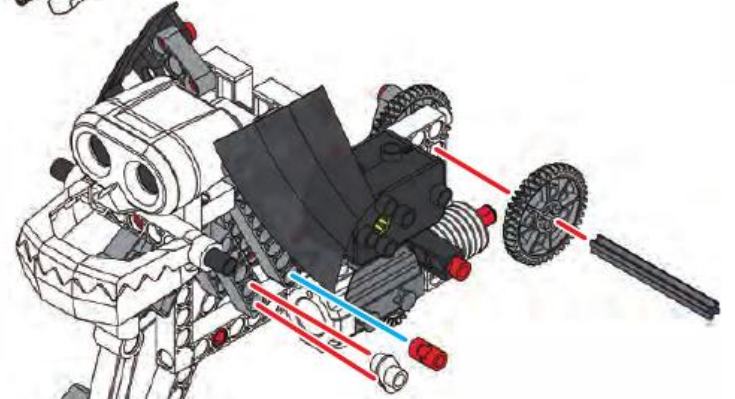




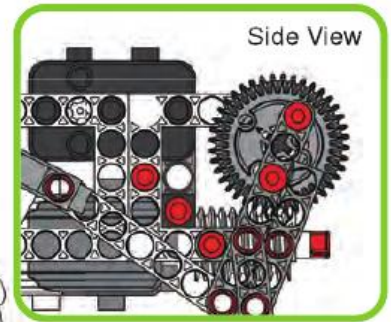
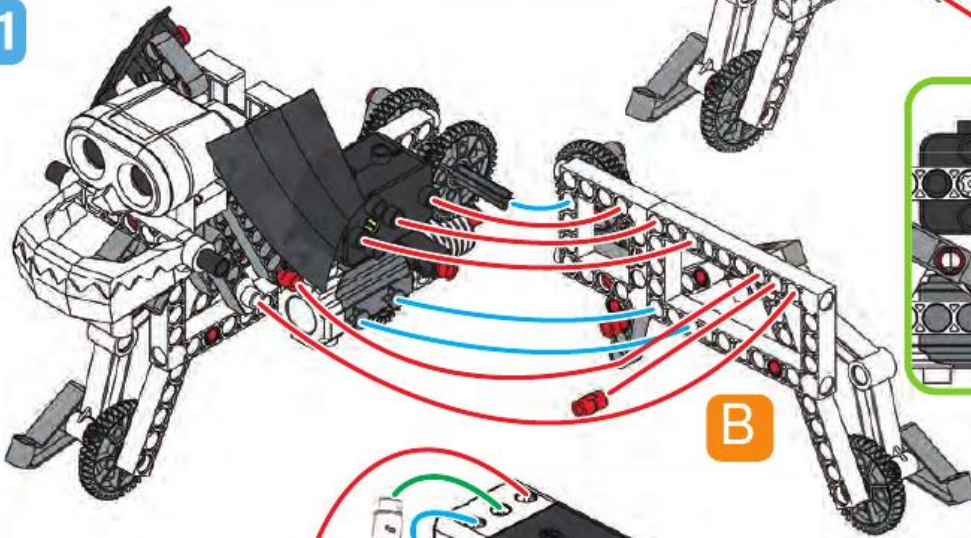
19



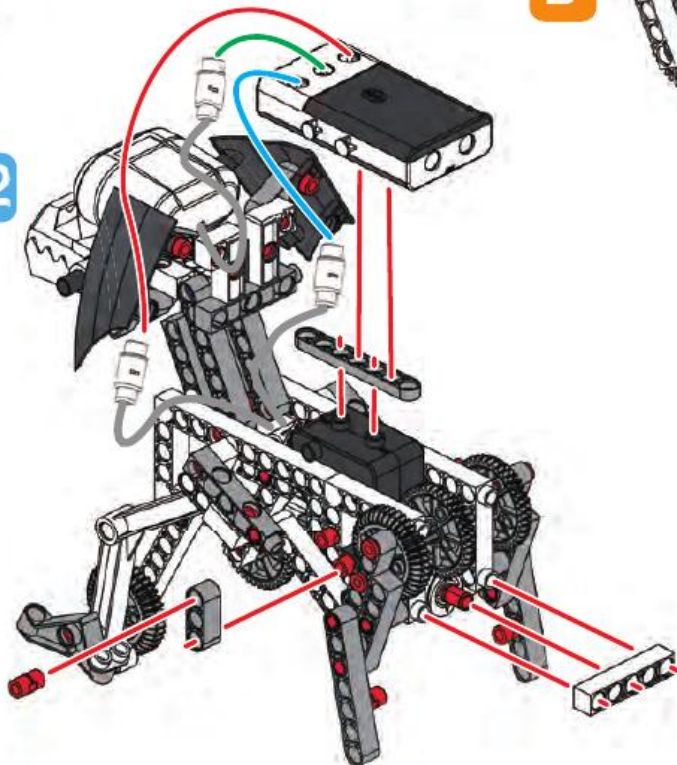
20



21

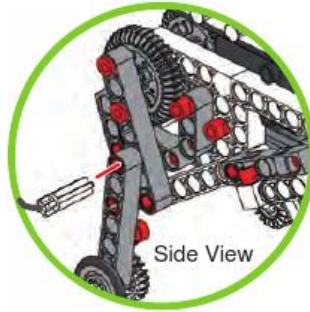
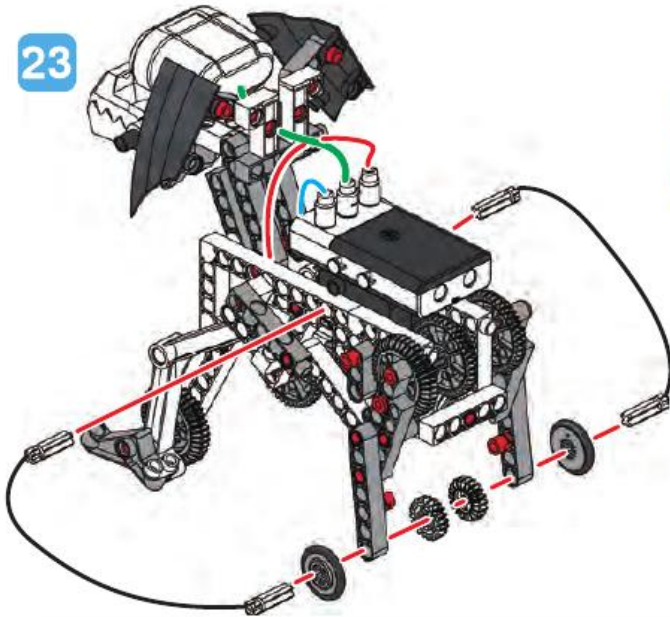


22





23



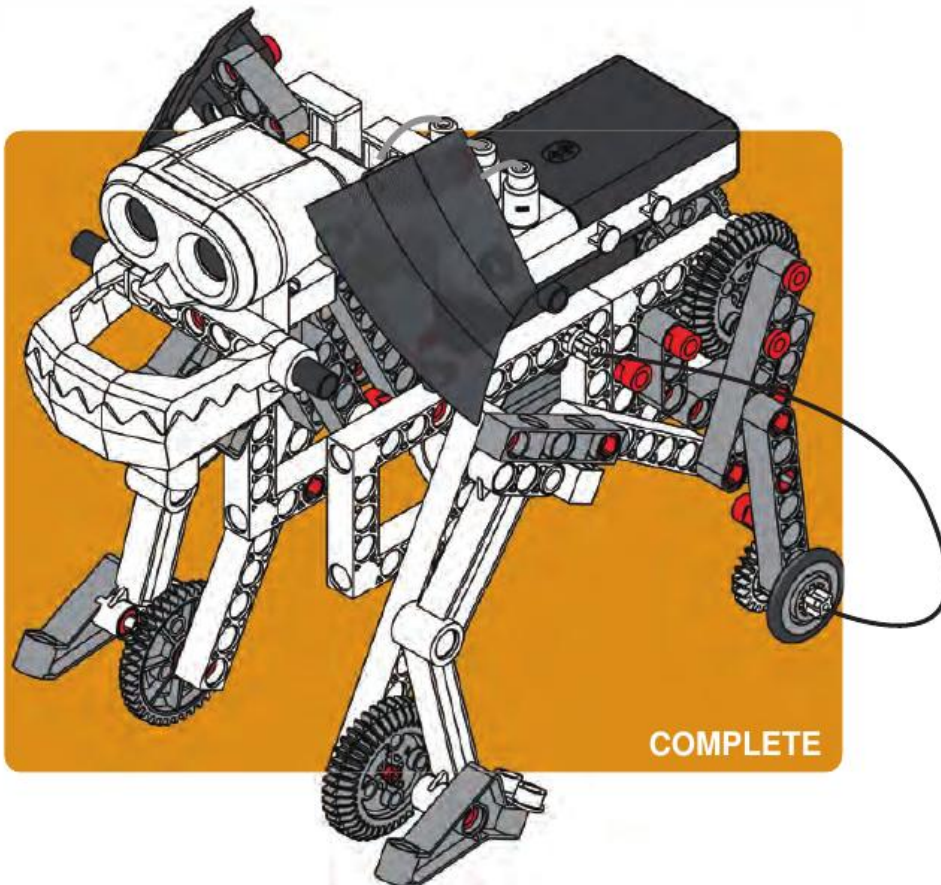
47 Planetary gear motor box's wire



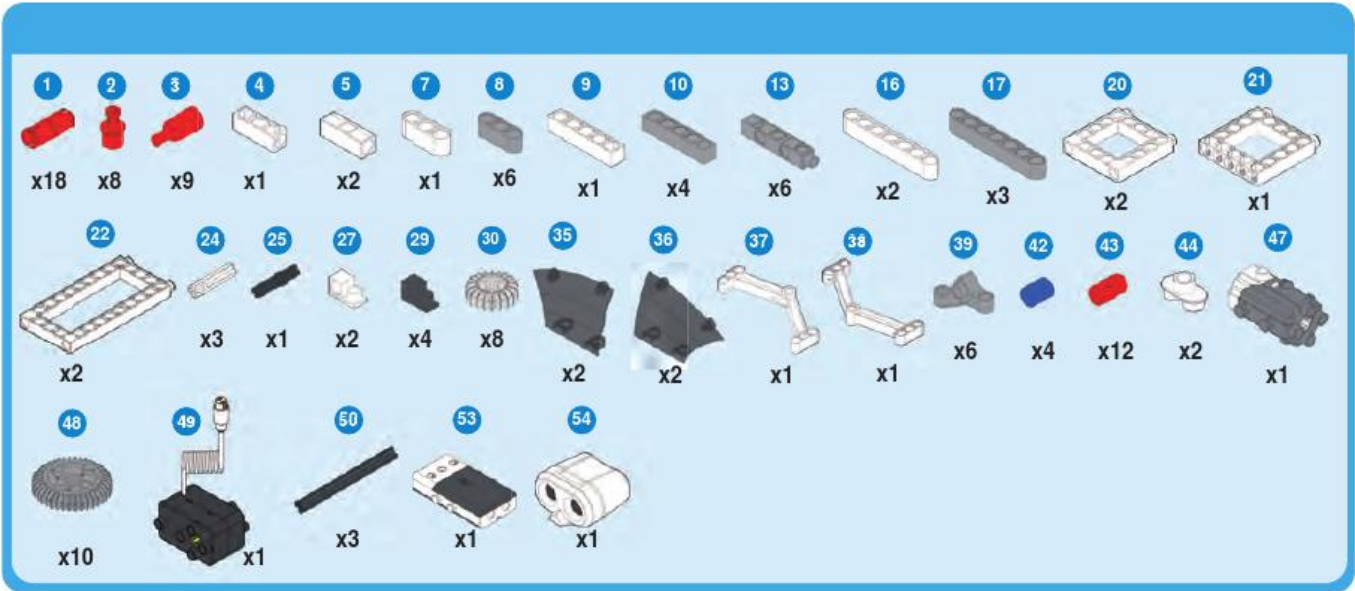
54 Ultrasonic sensor's wire



49 40X motor's wire



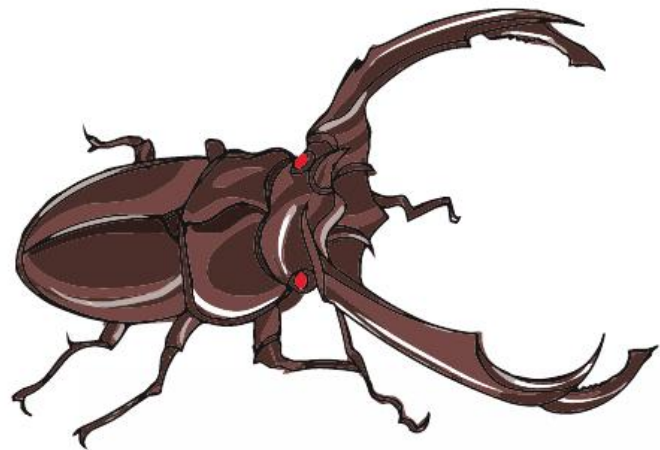
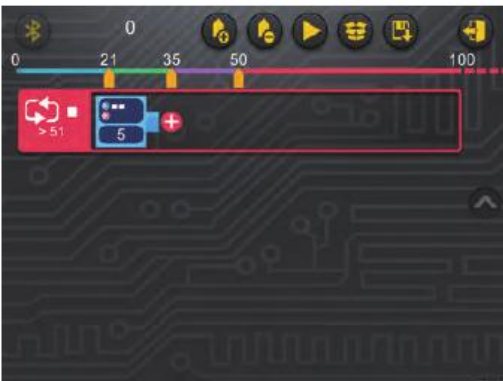
COMPLETE



### Mechanical Battle Beetle

The battle beetle robot program will make it walk until it detects an obstacle. When it does, it will swing its claws and flap its wings to scare you off.

If you continue to go near it, the beetle will back off and keep a distance from you. If you remove obstacles, it will continue to move forward.



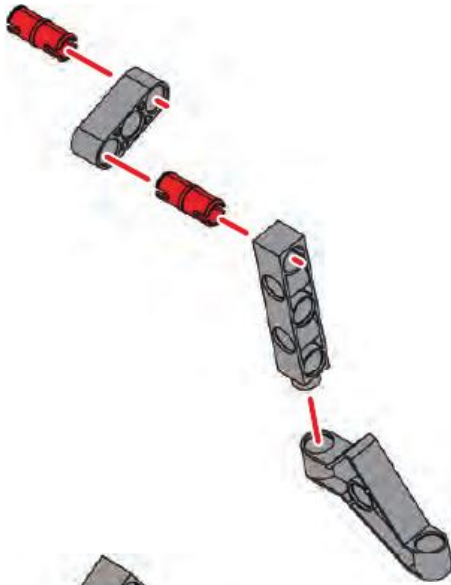
※ This program is preloaded in the app under Program 4. You can edit with your own programs and music.



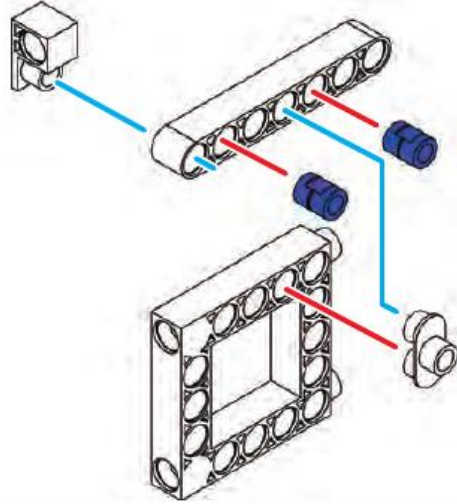
## Mechanical Battle Beetle 5 Model

1

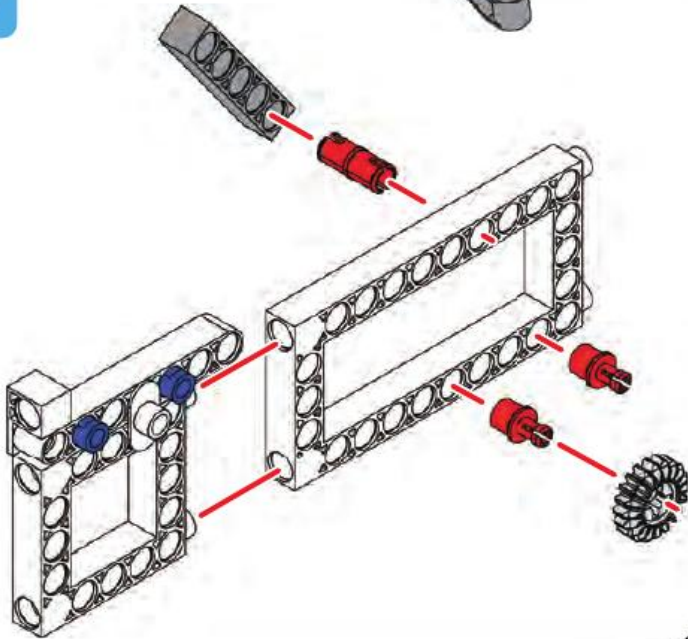
6 sets



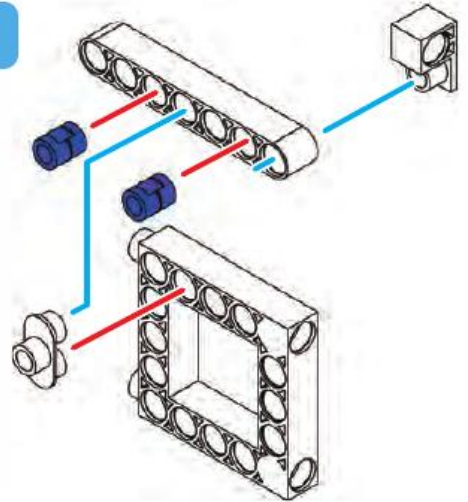
2



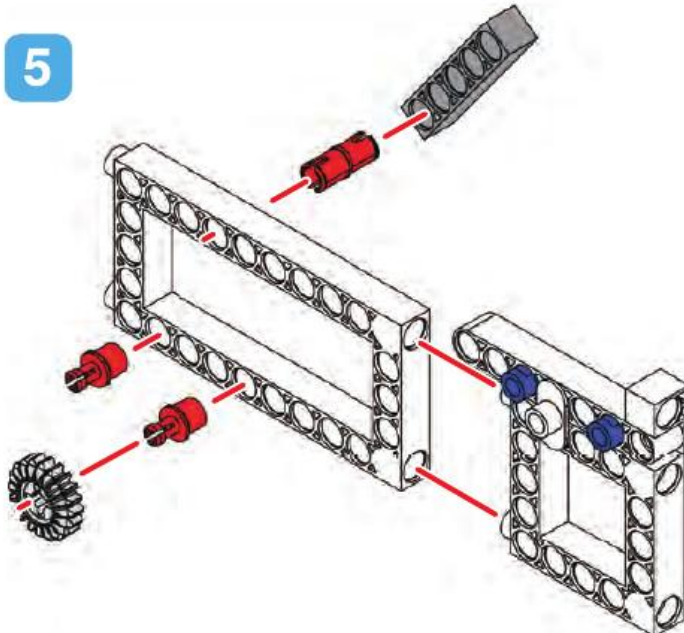
3

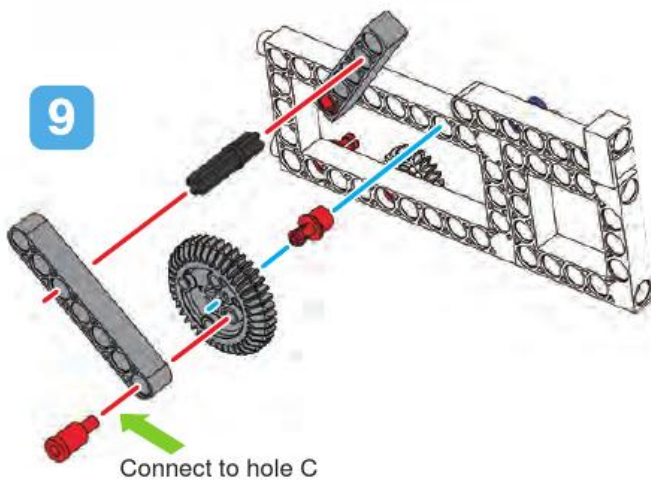
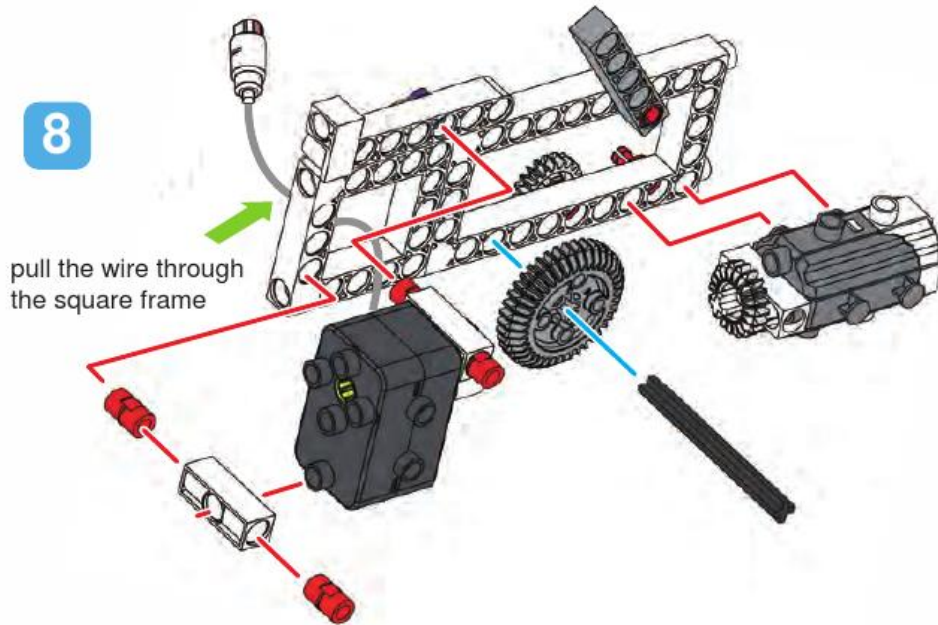
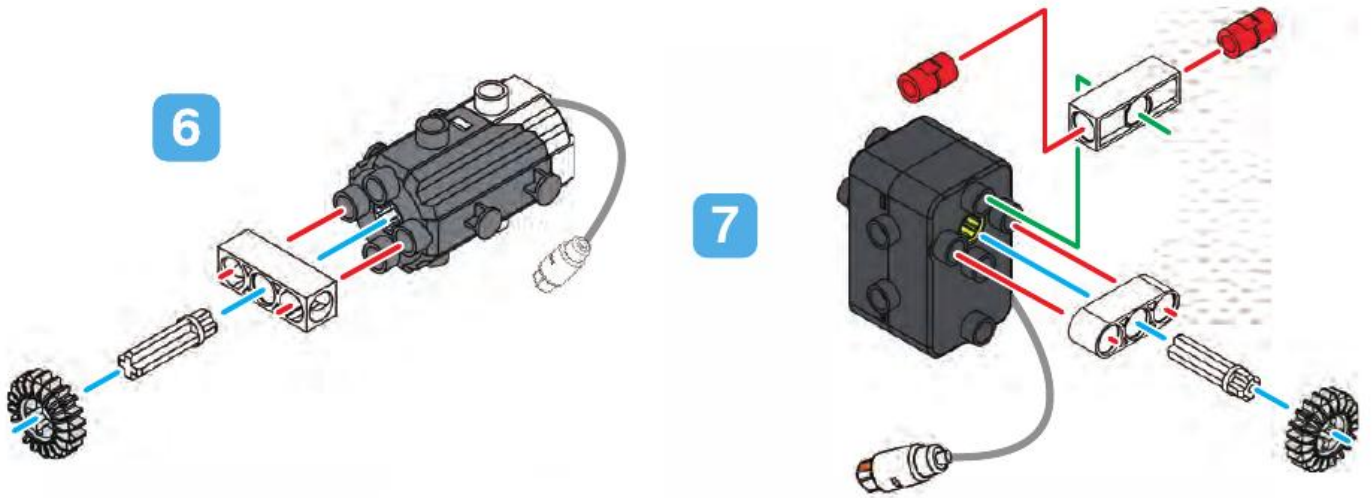


4

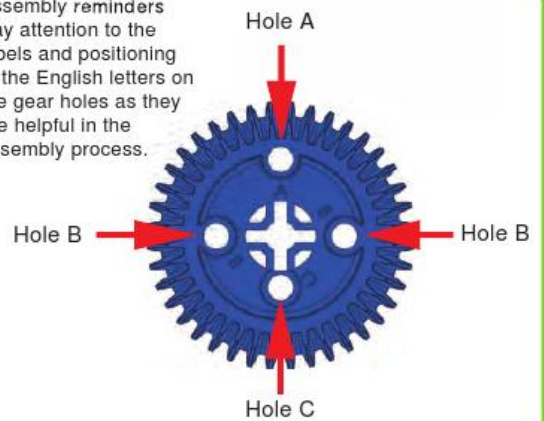


5



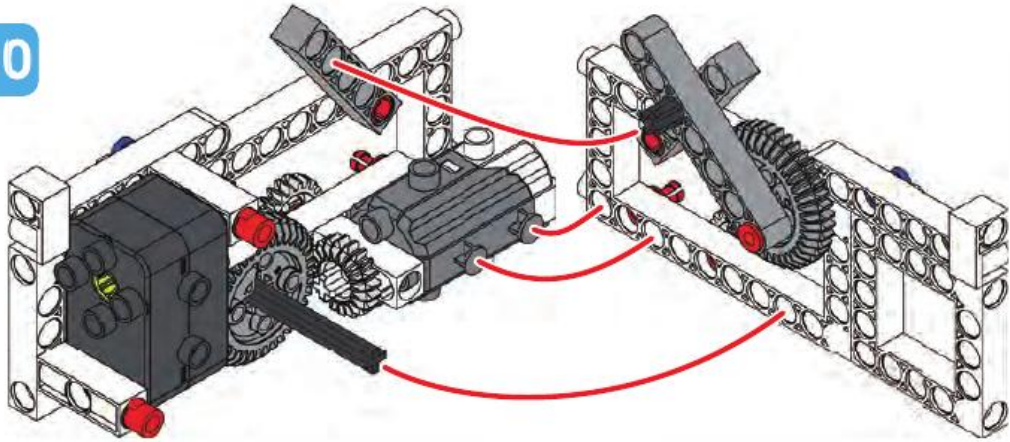


Assembly reminders  
Pay attention to the labels and positioning of the English letters on the gear holes as they are helpful in the assembly process.

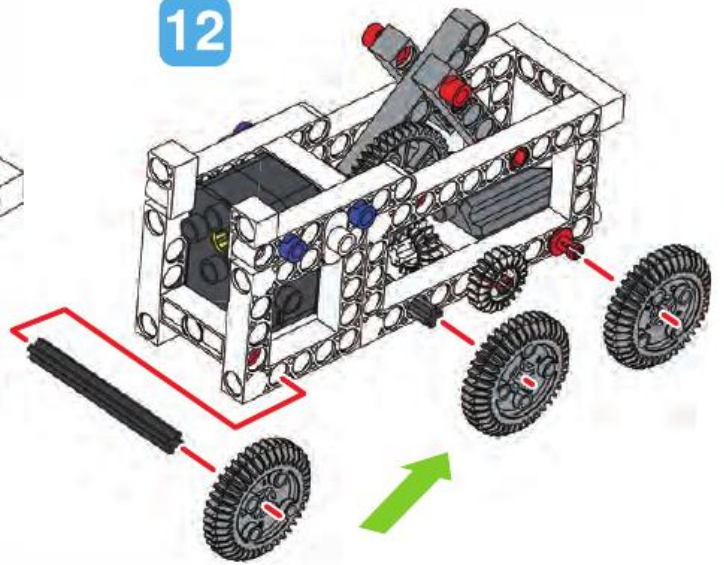




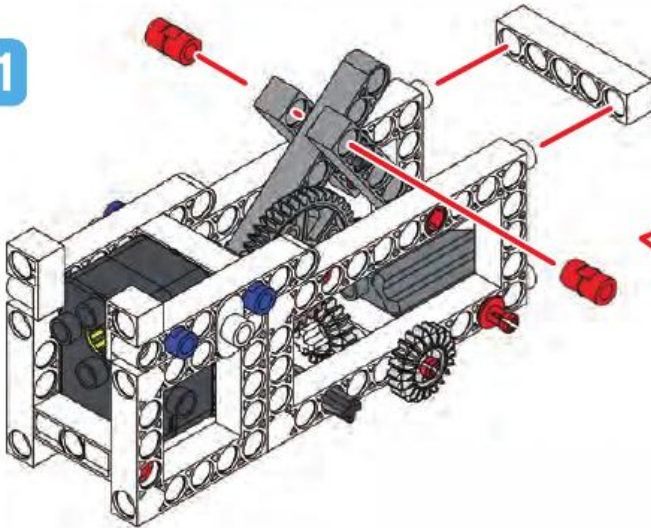
10



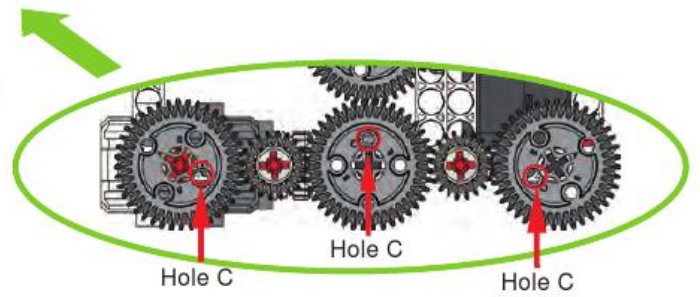
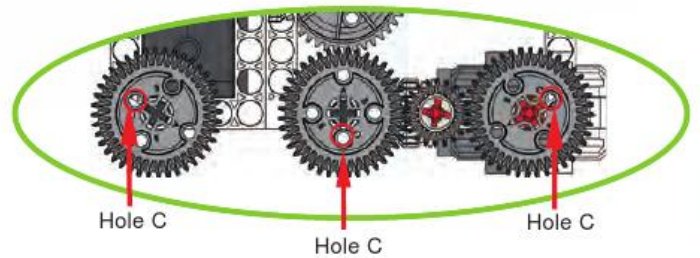
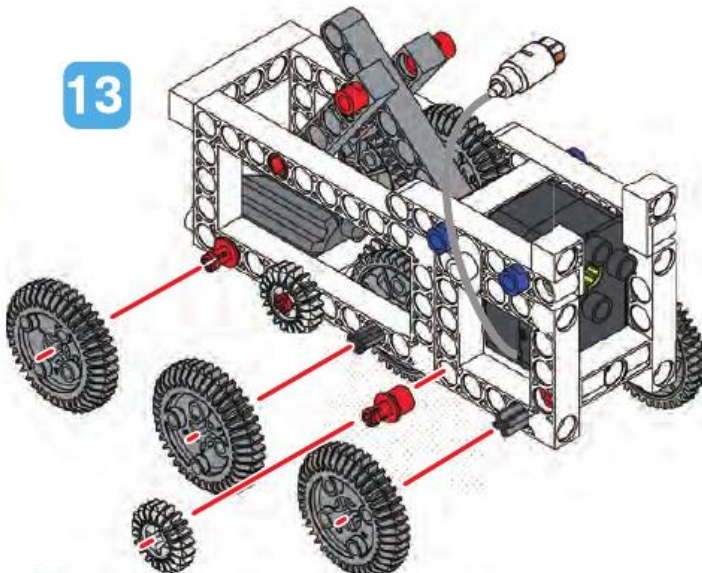
12



11



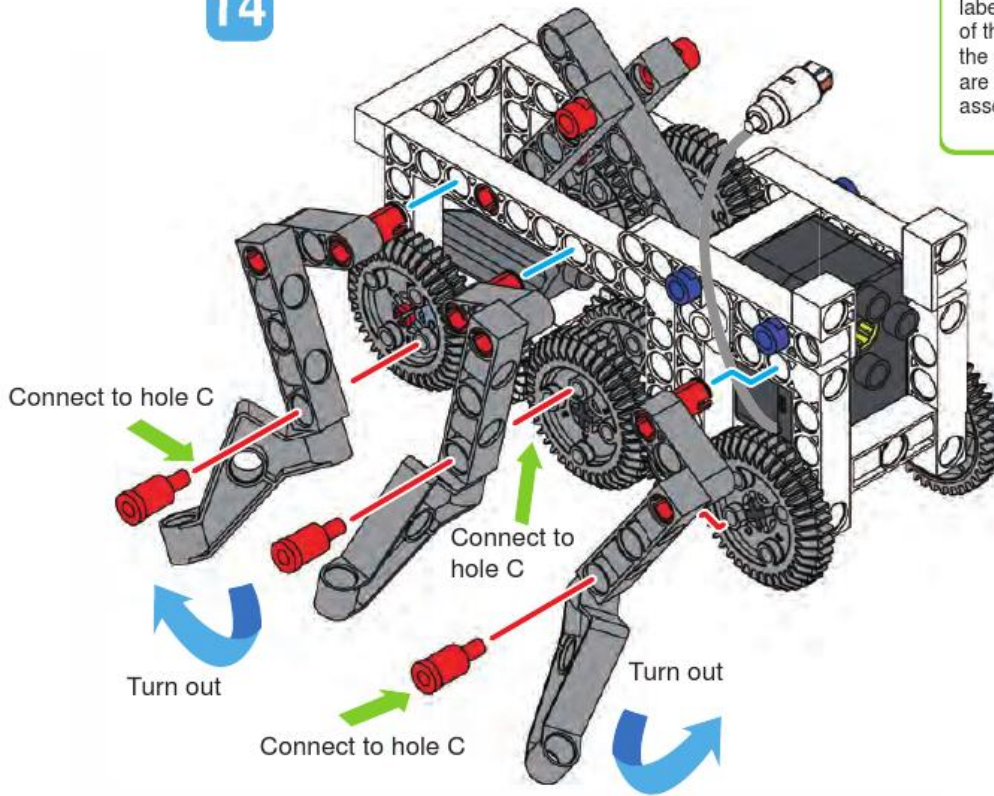
13



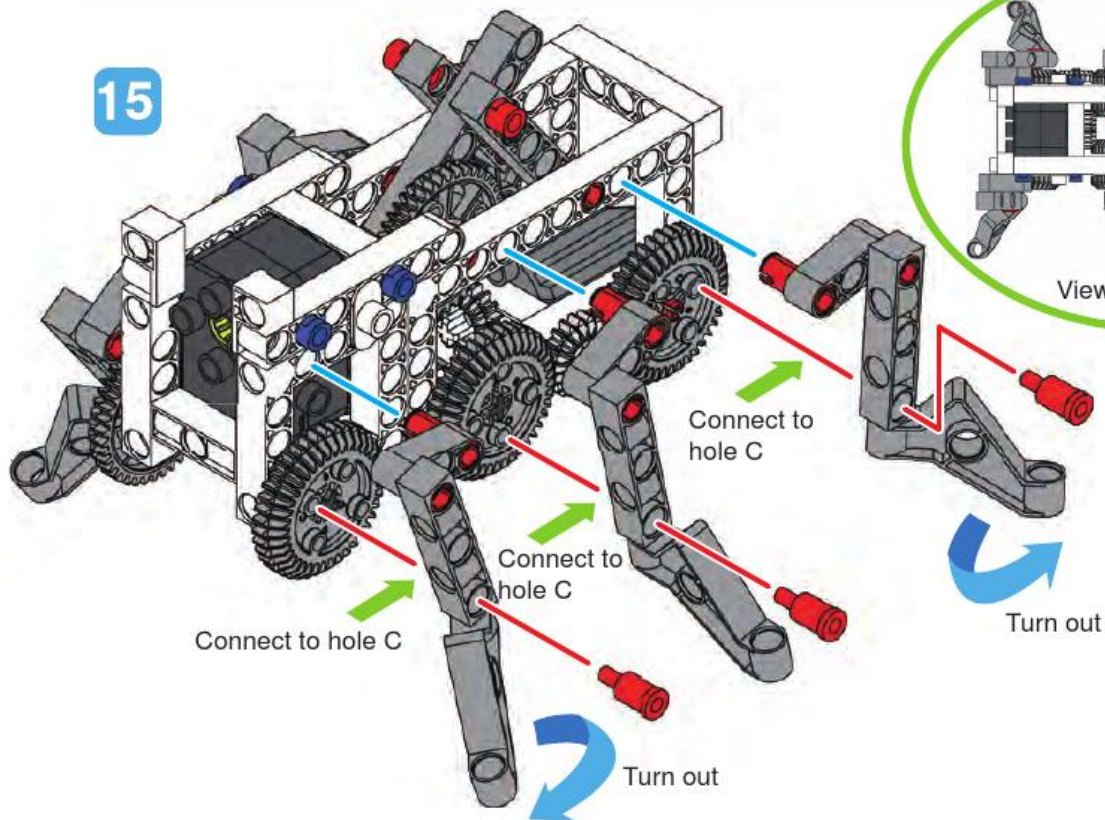


14

Assembly reminder s  
Pay attention to the  
labels and positioning  
of the English letters on  
the gear holes as they  
are helpful in the  
assembly process.

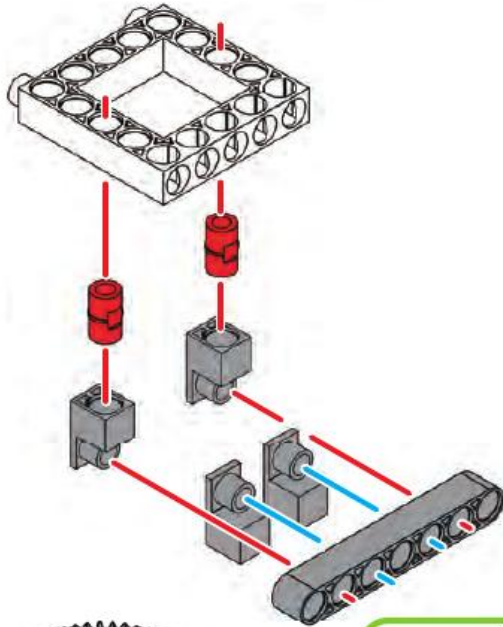


15

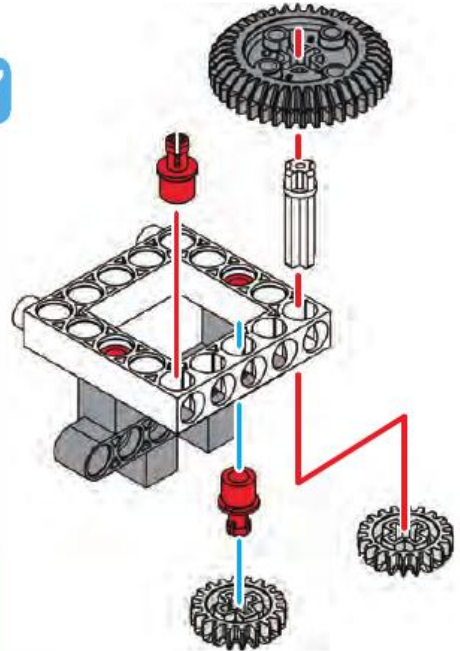




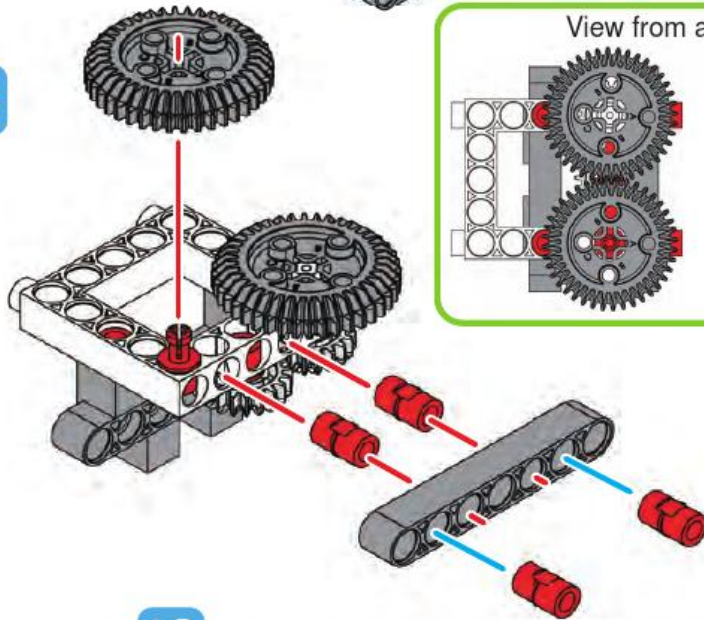
16



17



18



View from above

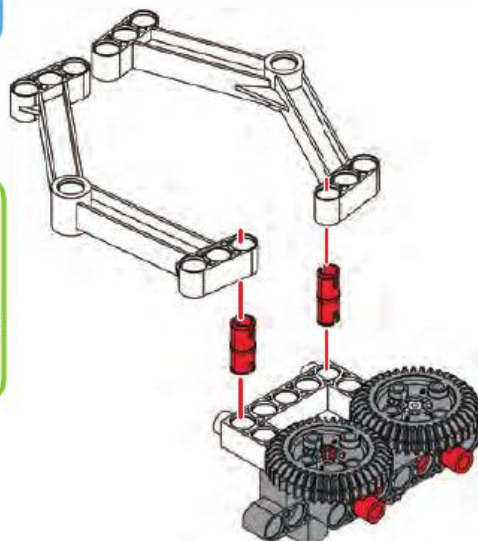
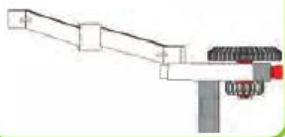
Assembly reminder  
Pay attention to the labels and positioning of the English letters on the gear holes as they are helpful in the assembly process.



Hole C

19

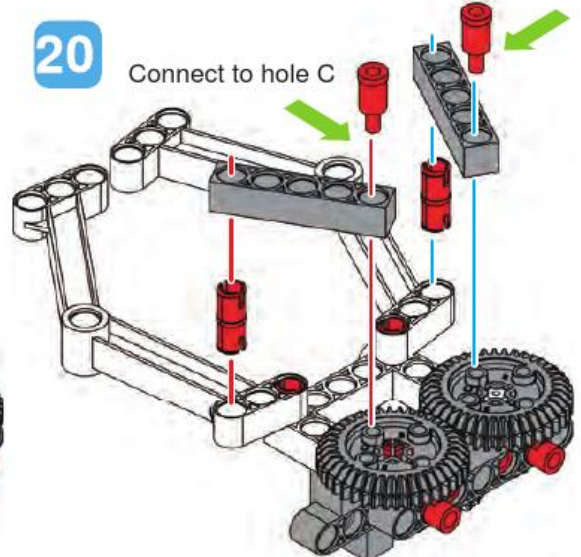
Side View



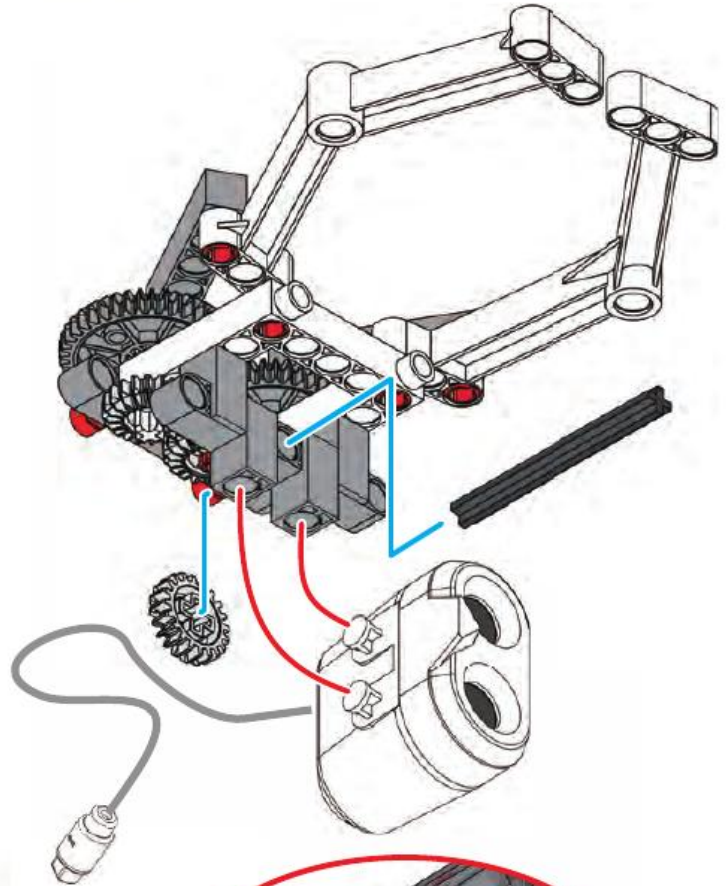
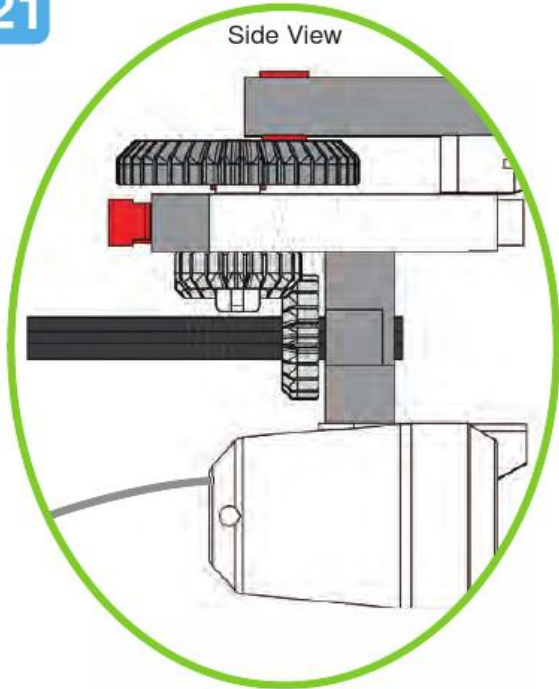
20

Connect to hole C

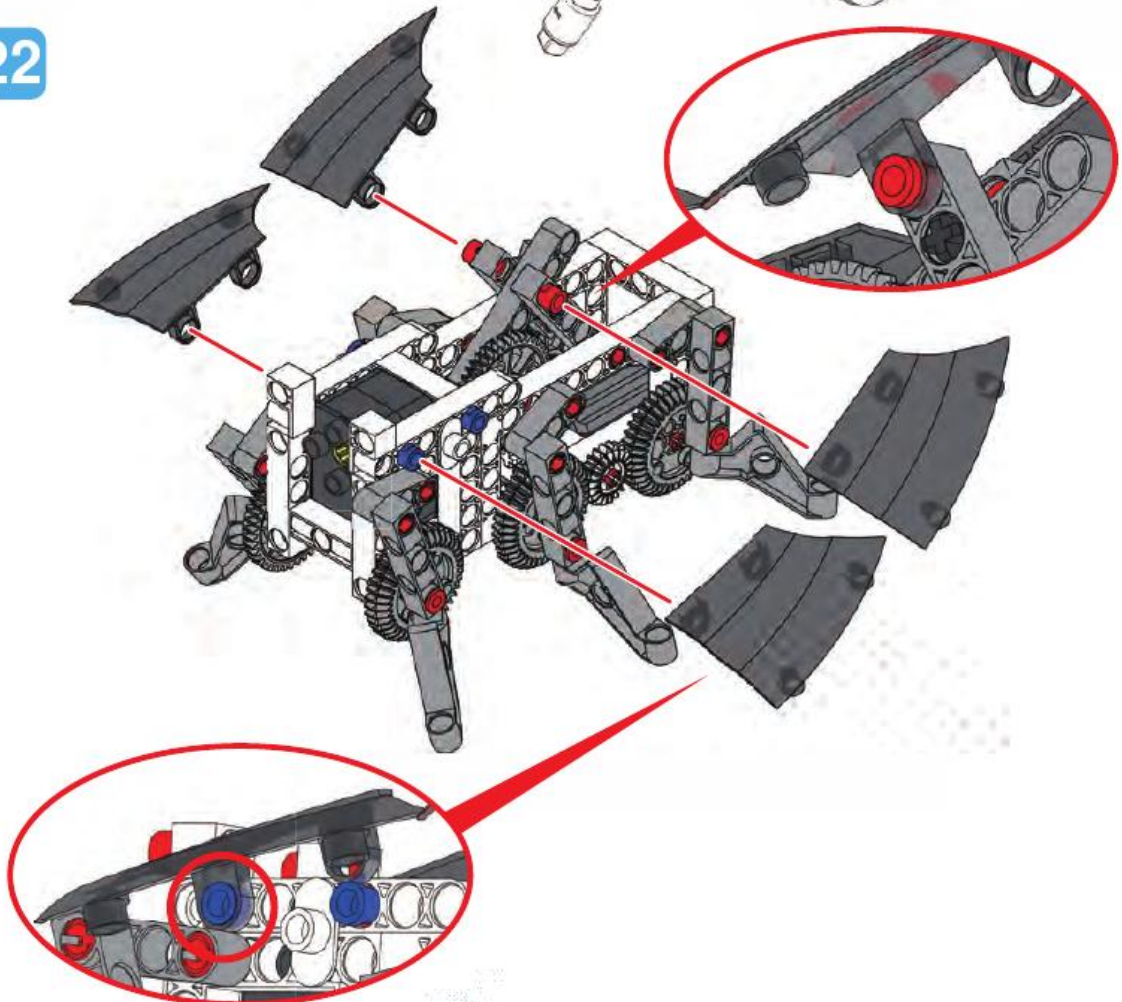
Connect to hole C



21



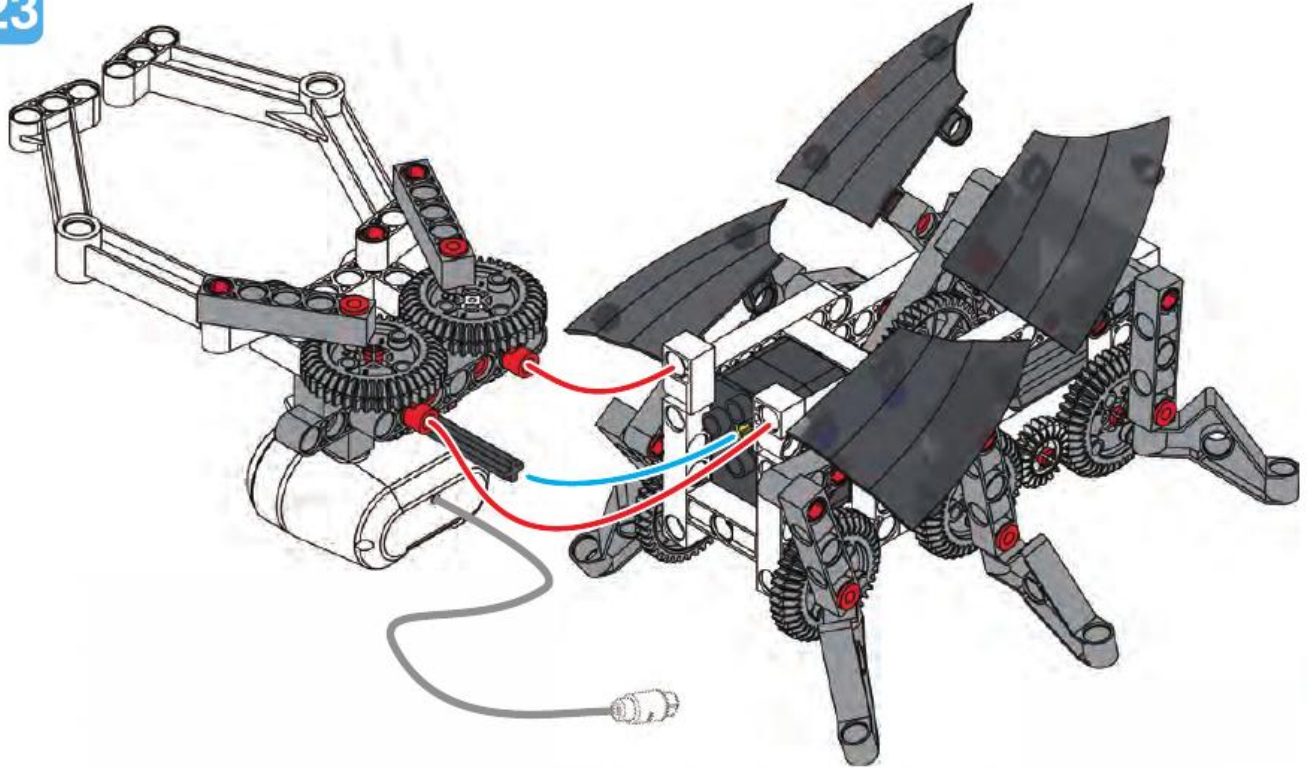
22



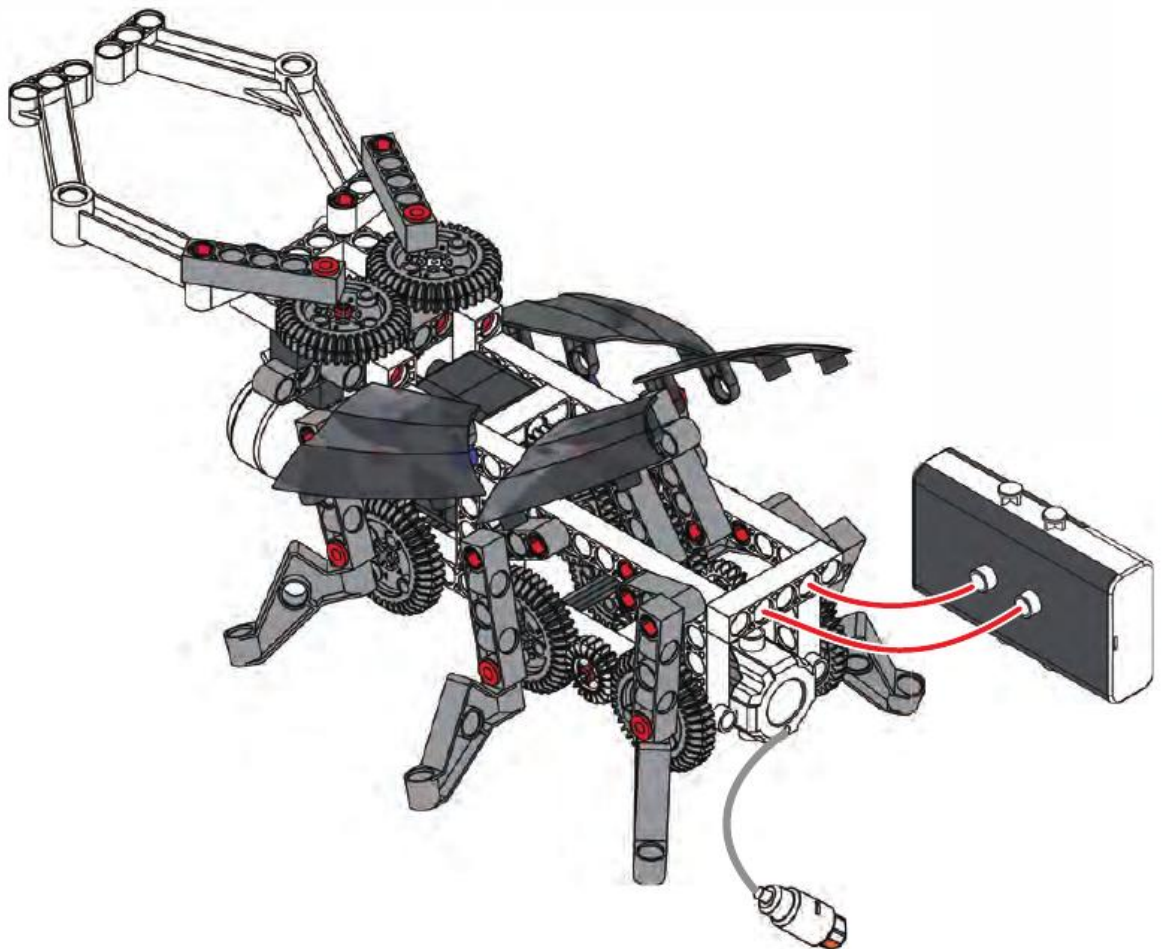


## Mechanical Battle Beetle 5 Model

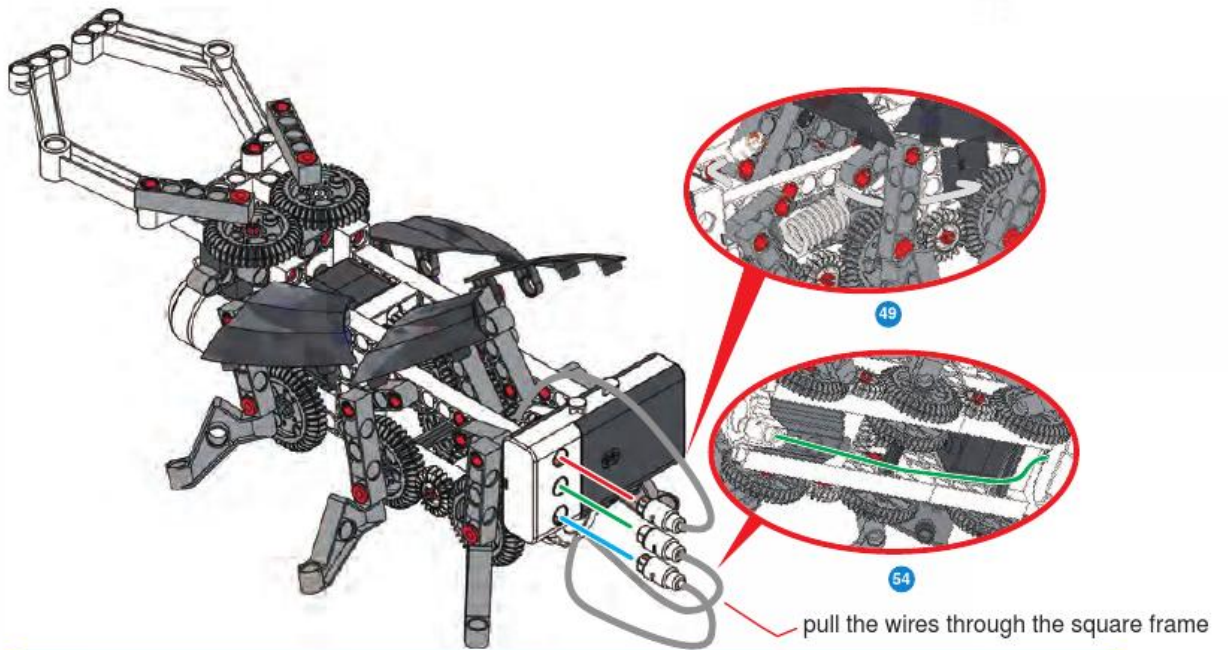
23



24



25



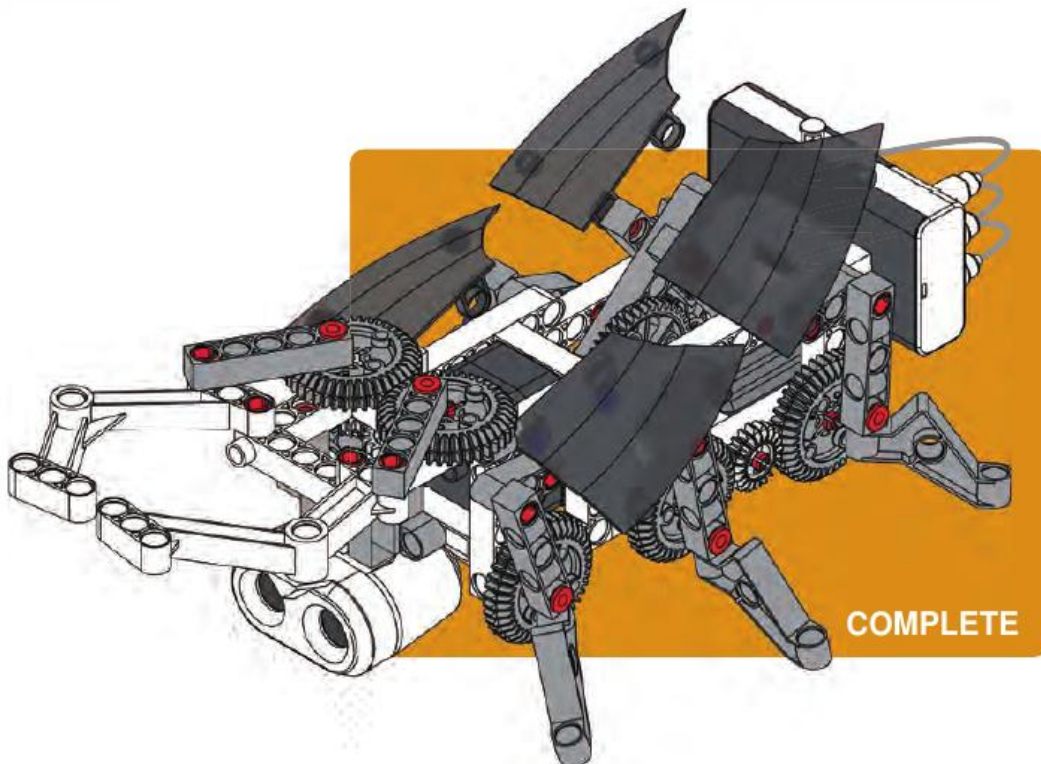
47 Planetary gear motor box's wire



54 Ultrasonic sensor's wire

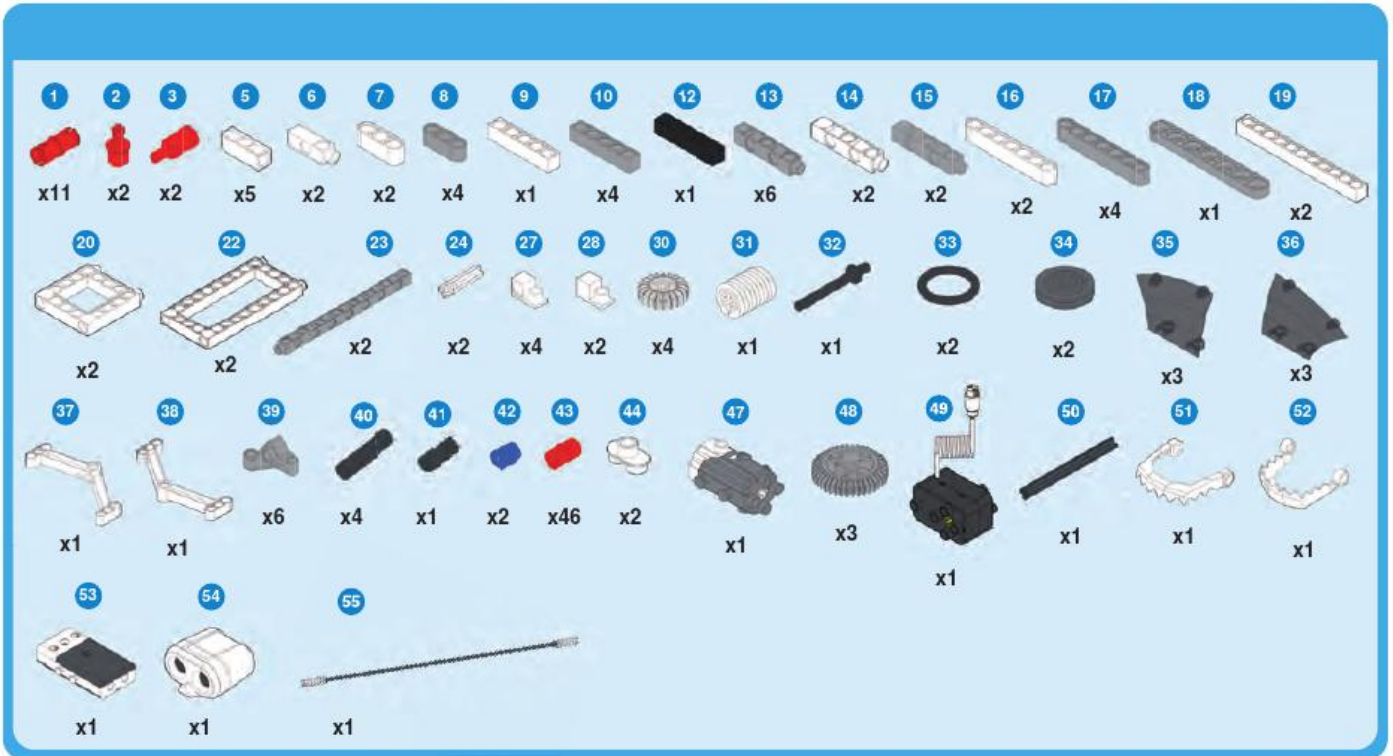


49 40X motor's wire



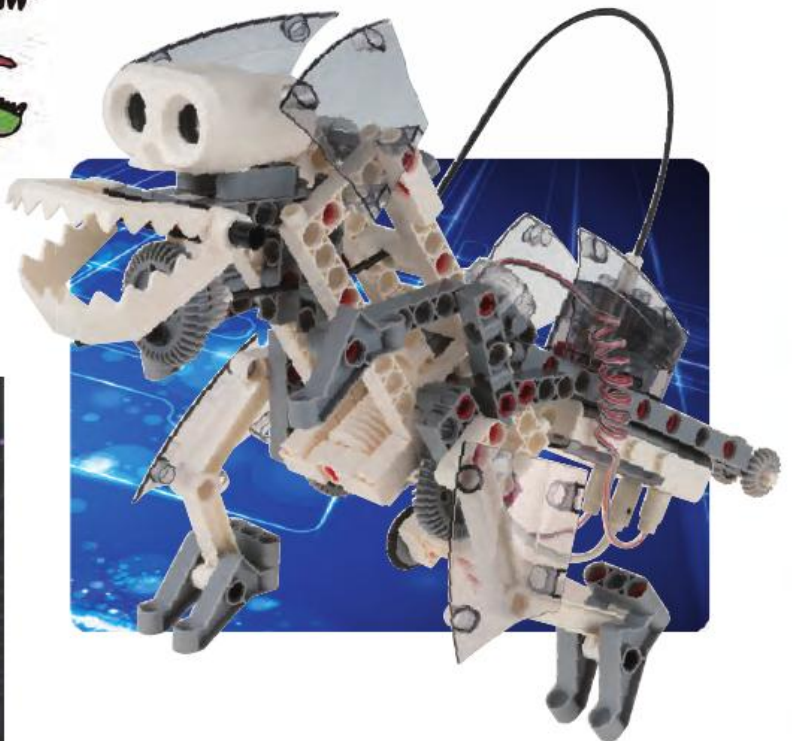


## Mechanical T-Rex 6 Model



## Mechanical T-Rex

Children, have you seen mechanical dinosaurs? Modern technology is very advanced and some children's theatres use robot dinosaurs to perform. These mechanical dinosaurs move on stage and emit sounds in a lifelike manner.

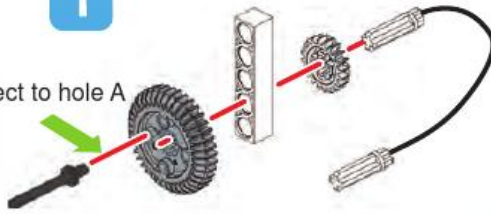


53

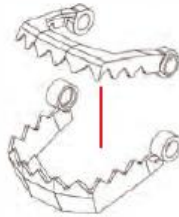
※ This program is preloaded in the app under Program 5. You can edit with your own programs and music.

1

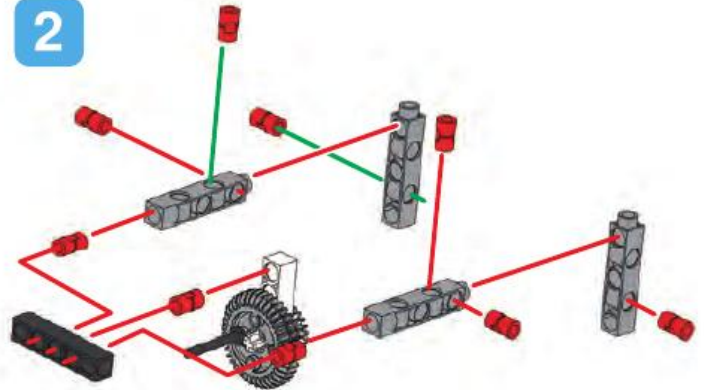
Connect to hole A



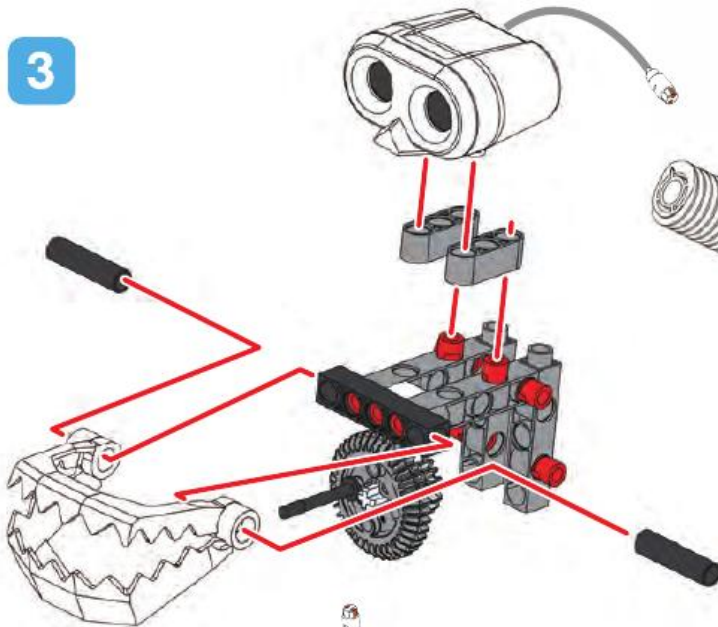
Assembly reminder s  
Pay attention to the  
labels and positioning  
of the English letters on  
the gear holes as they  
are helpful in the  
assembly process.



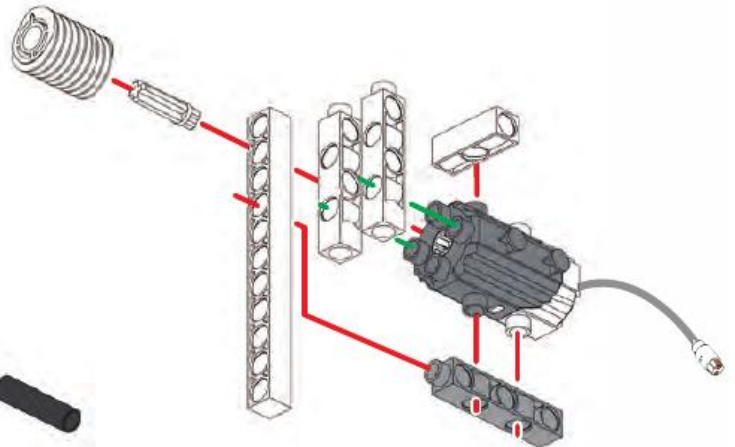
2



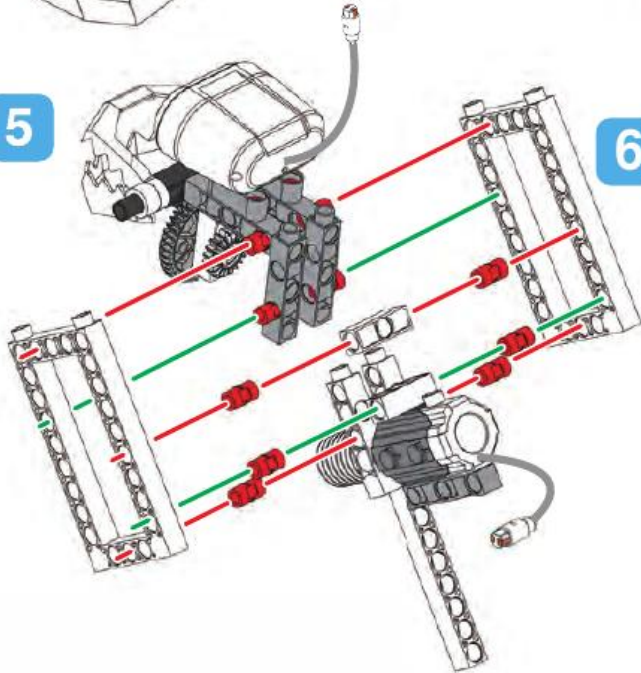
3



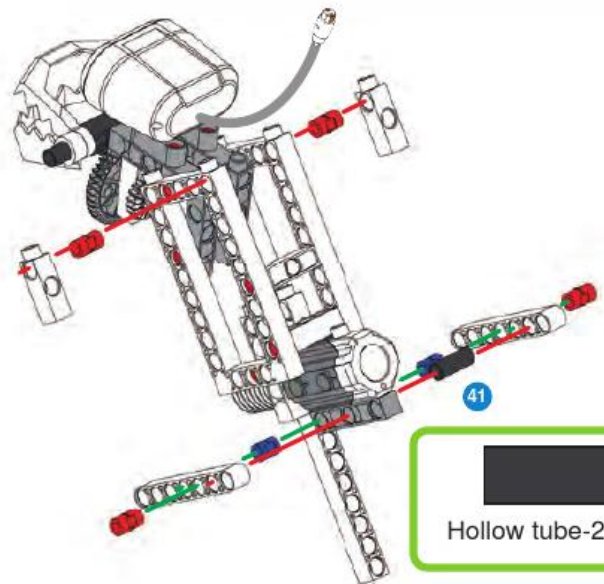
4



5



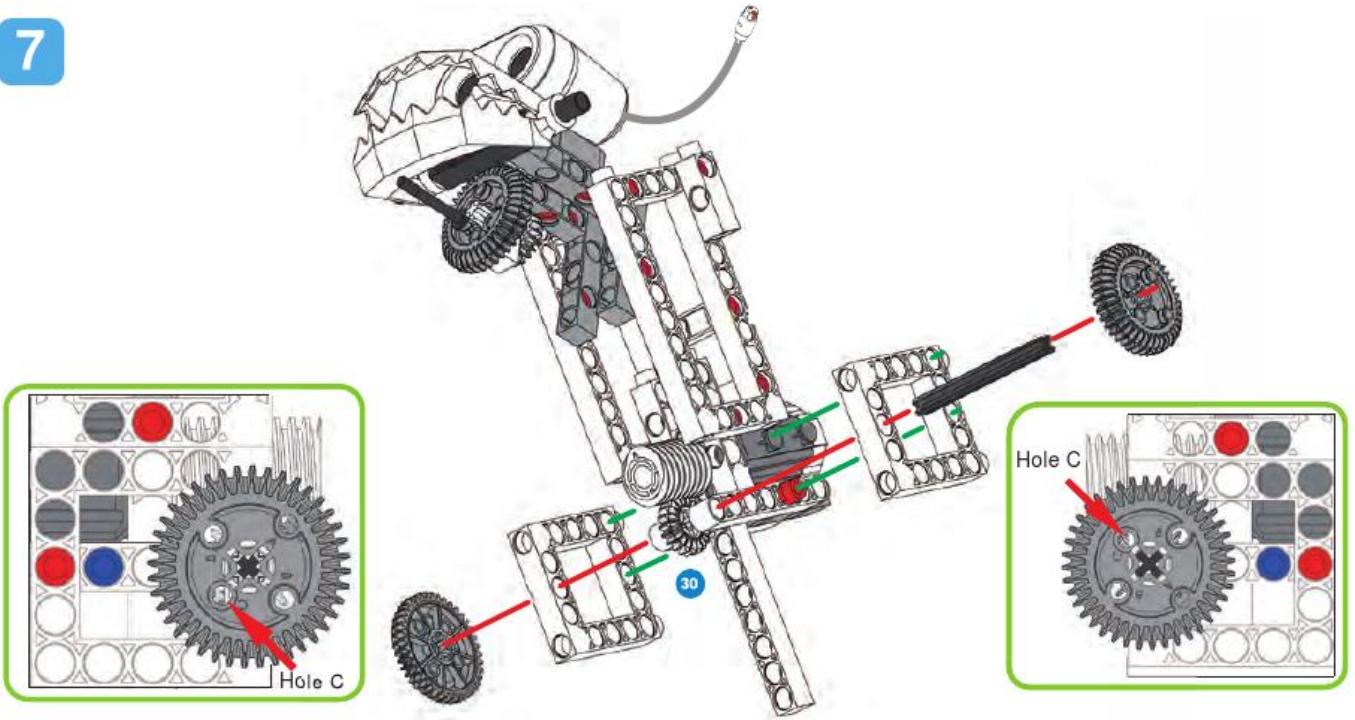
6



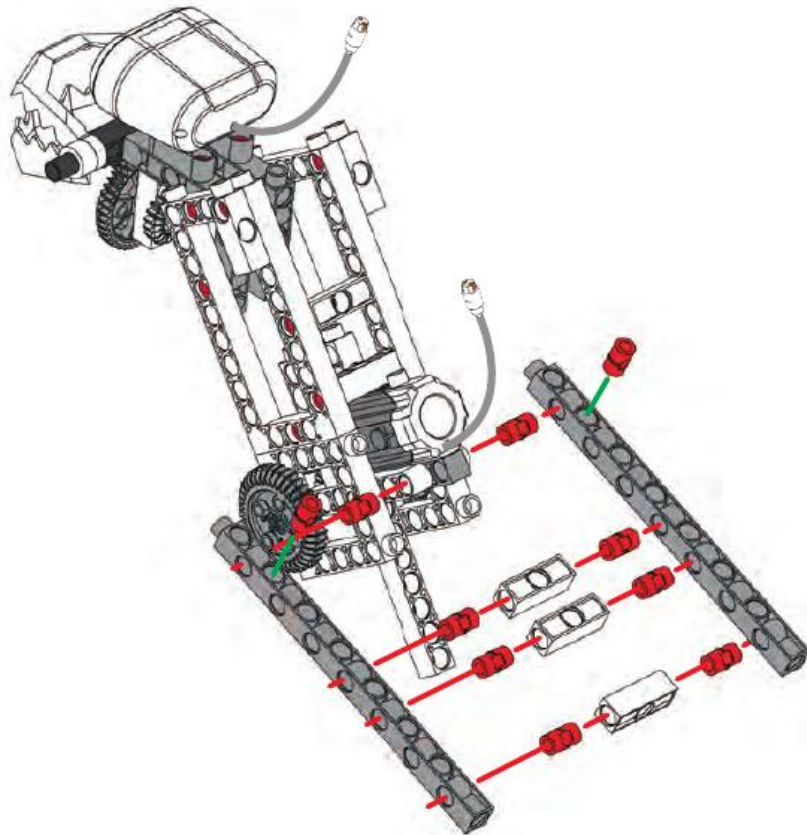
Hollow tube-20mm



7

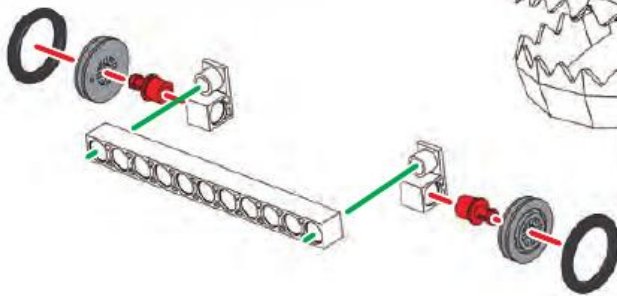


8

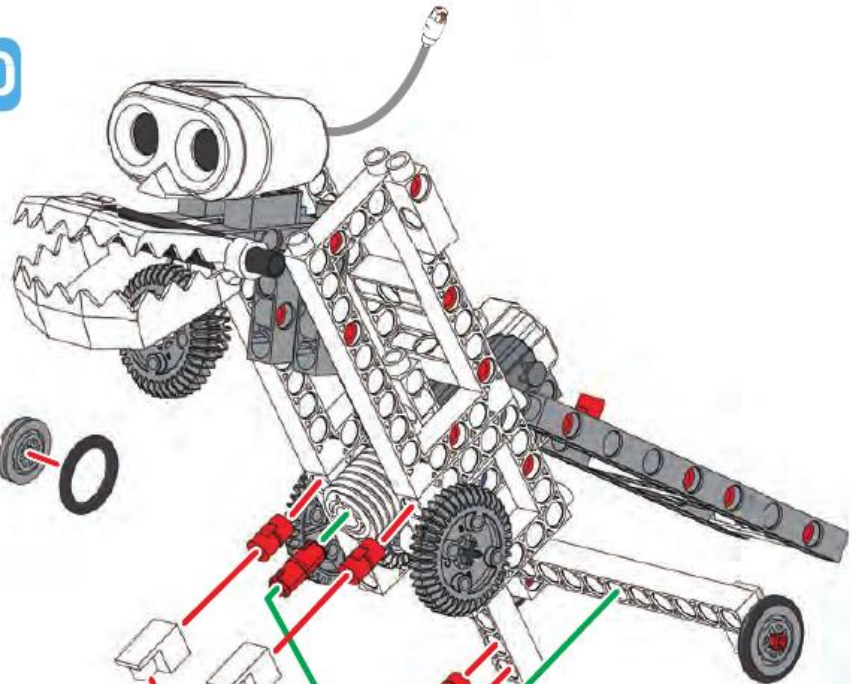




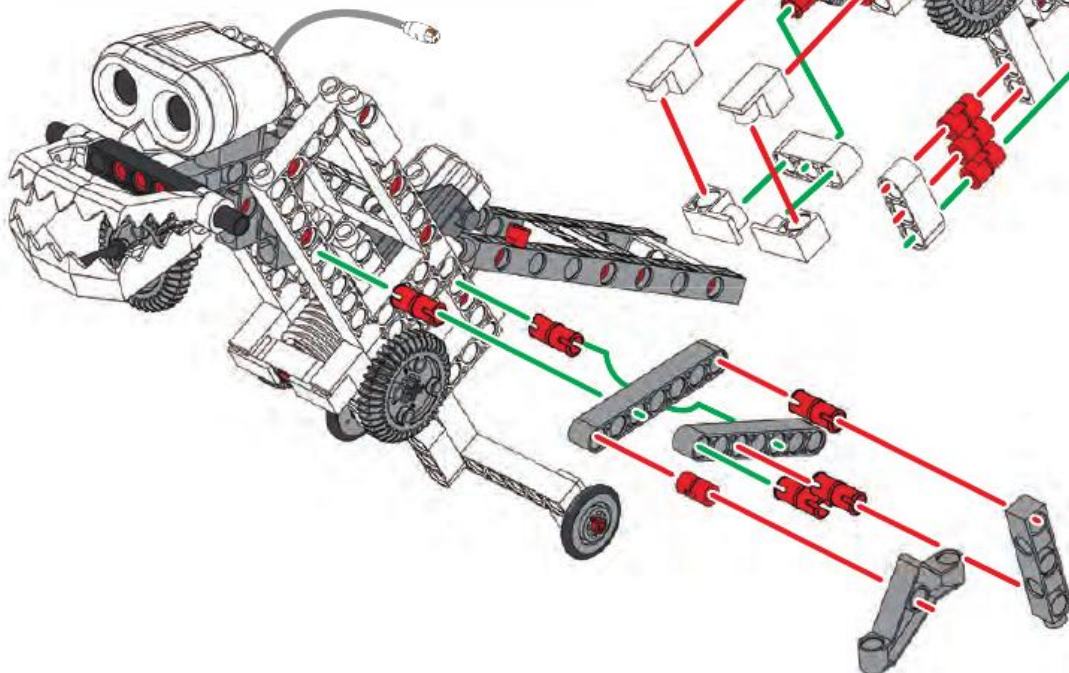
9



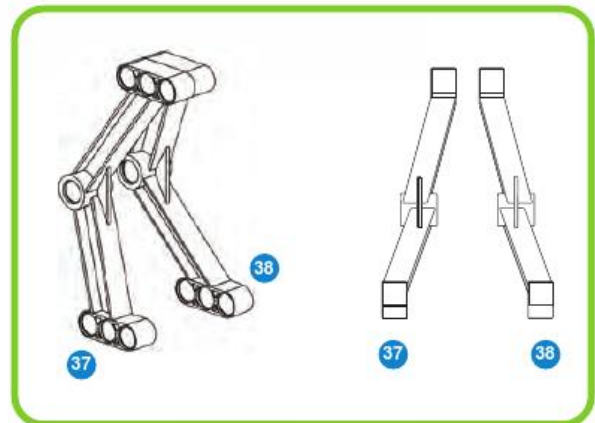
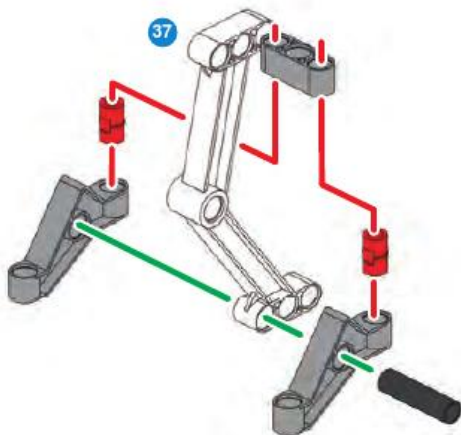
10



11

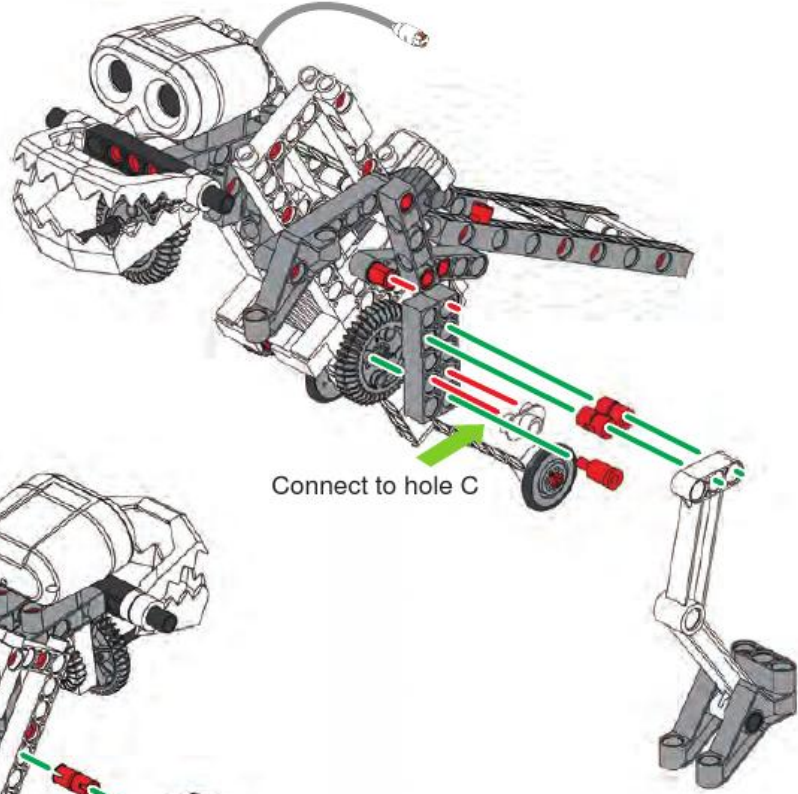


12

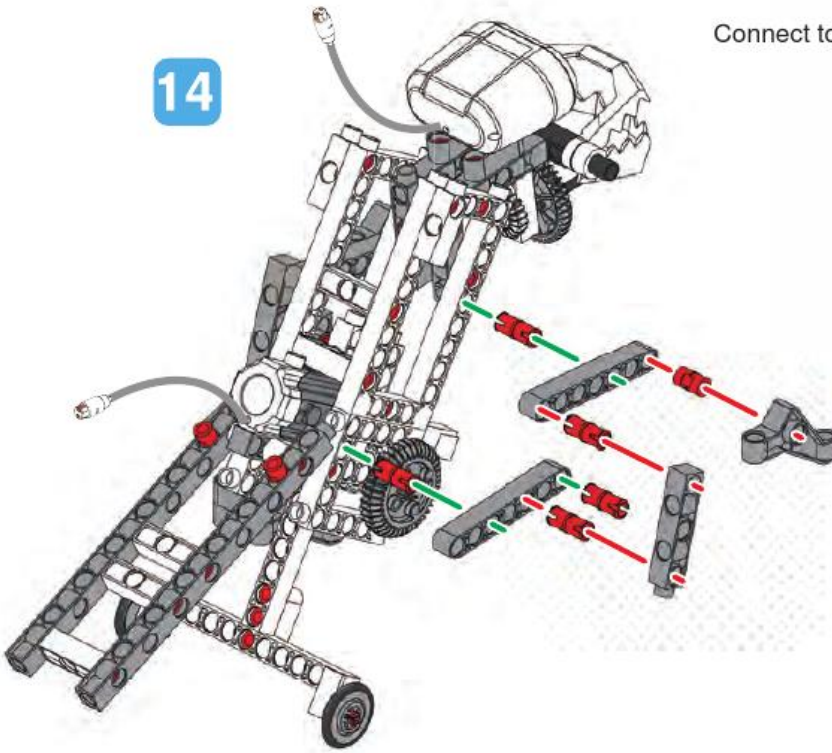




13



14

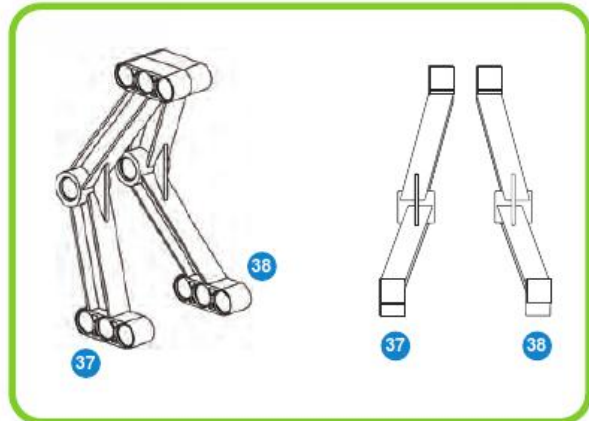
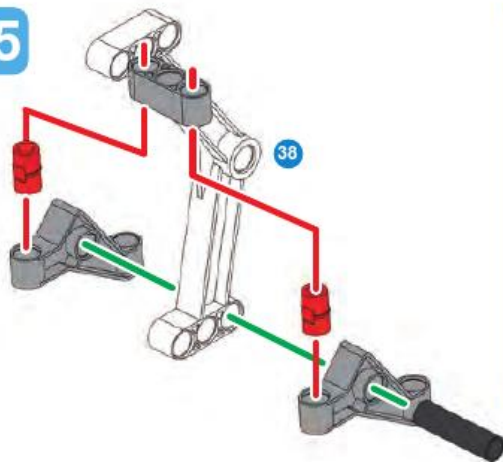


Assembly reminder s  
Pay attention to the  
labels and positioning  
of the English letters on  
the gear holes as they  
are helpful in the  
assembly process.

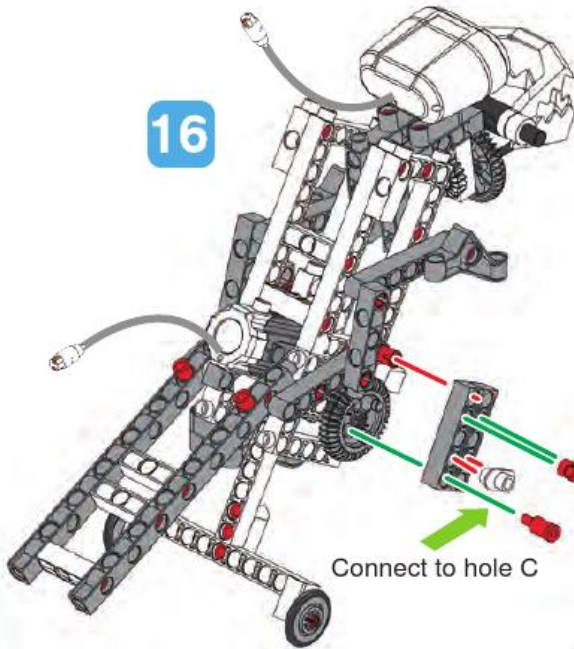


Hole C

15



16



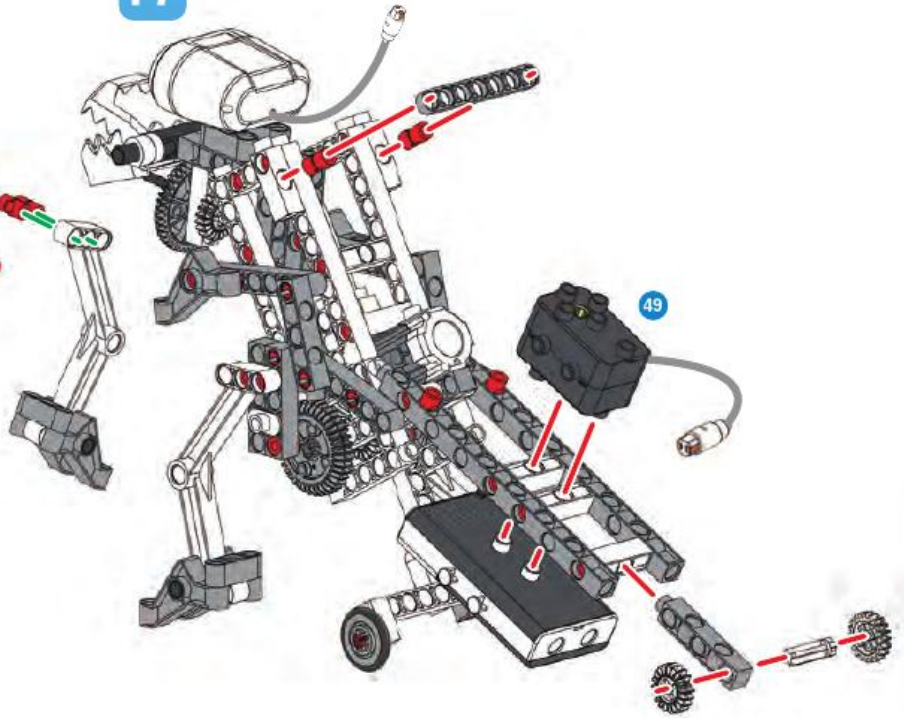
Connect to hole C

Assembly reminder s  
Pay attention to the  
labels and positioning  
of the English letters on  
the gear holes as they  
are helpful in the  
assembly process.

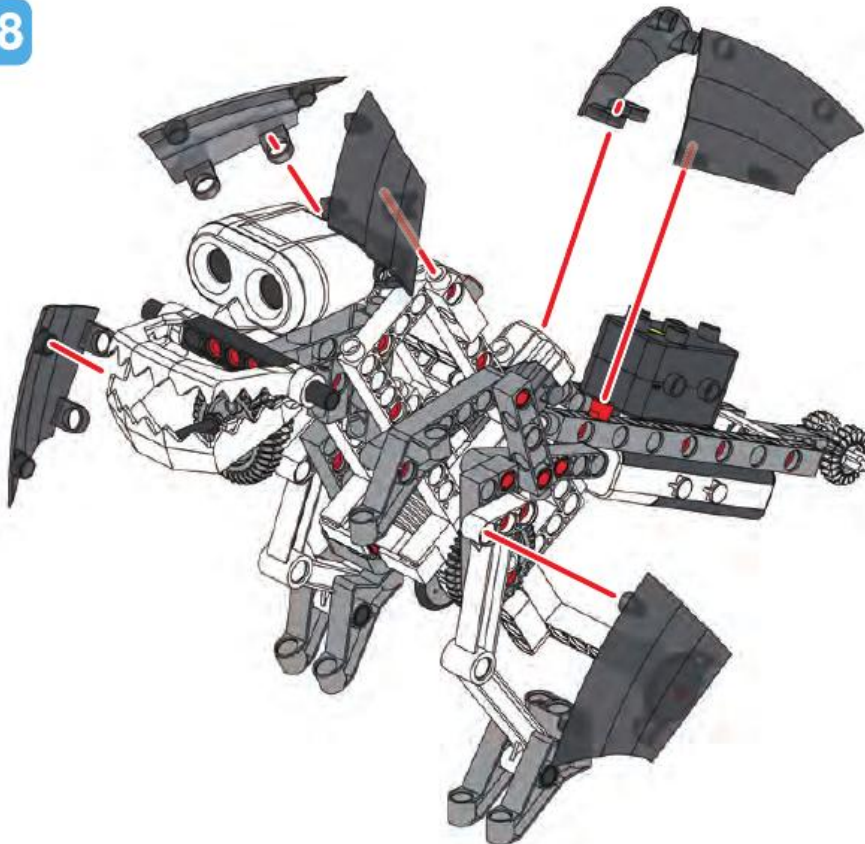


Hole C

17



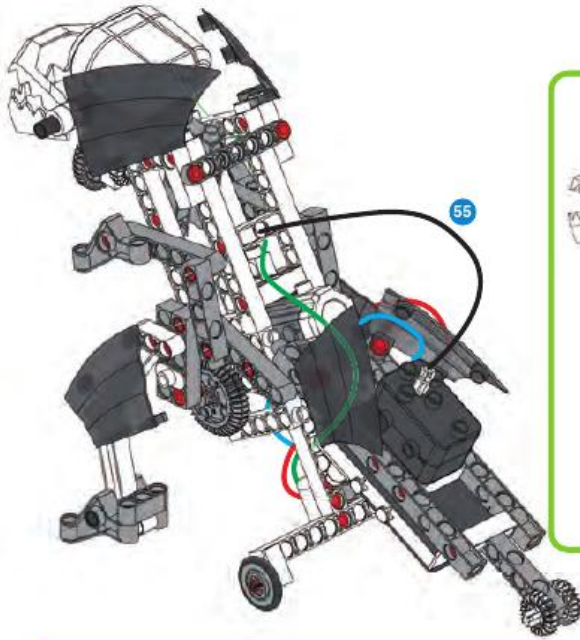
18



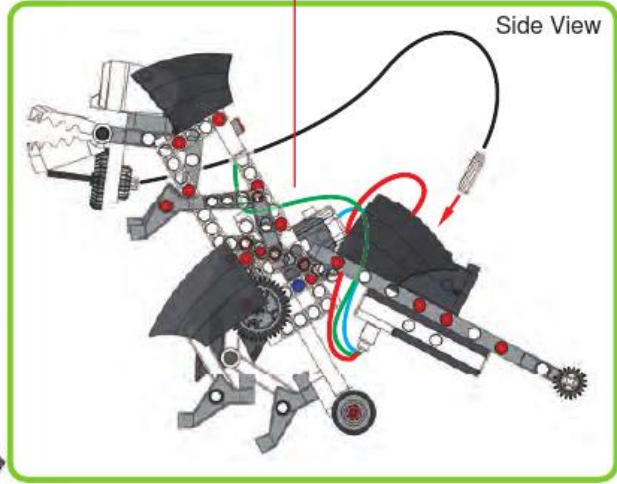


## Mechanical T-Rex 6 Model

19



pull the wires through the square frame



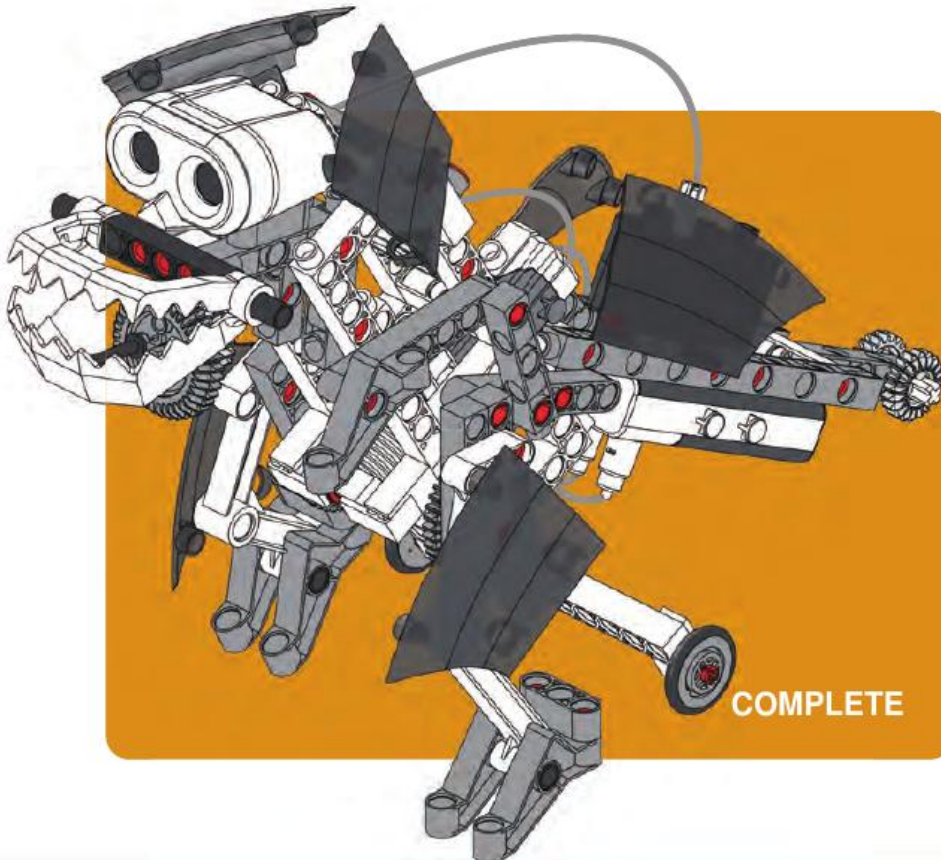
47 Planetary gear motor box's wire

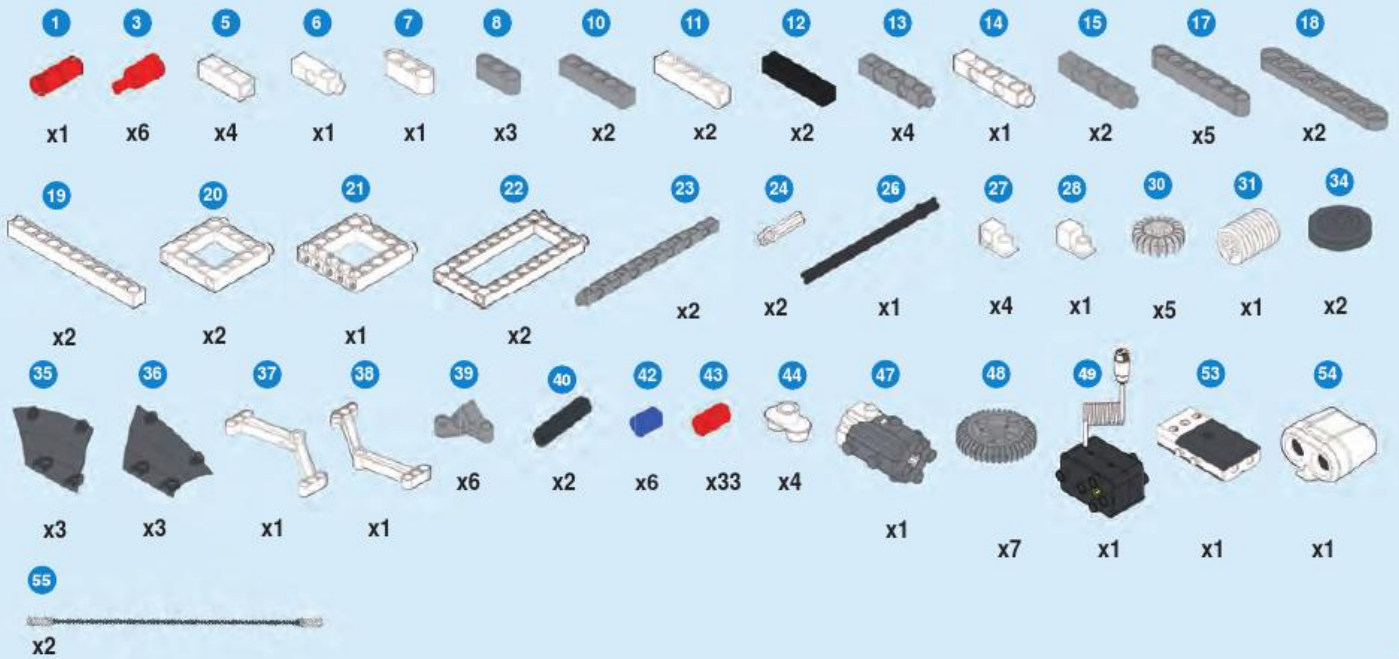


54 Ultrasonic sensor's wire



49 40X motor's wire

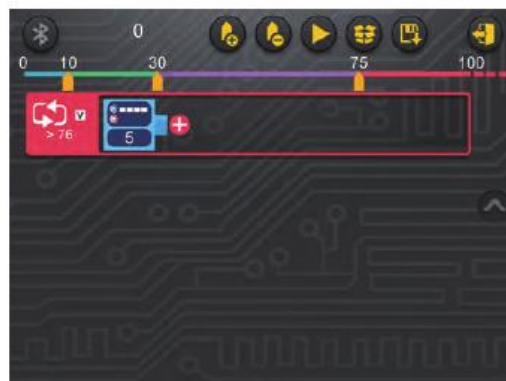




### Tiltrotor Aircraft

This unmanned smart helicopter program can activate rotor blades. V-22 is the U.S. military's new generation transport. When on the ground, its two rotors are vertical to the ground like a helicopter. It uses the principles of a helicopter to take flight. The rotors will then turn like the propellers of a plane to propel the V-22 into flight.

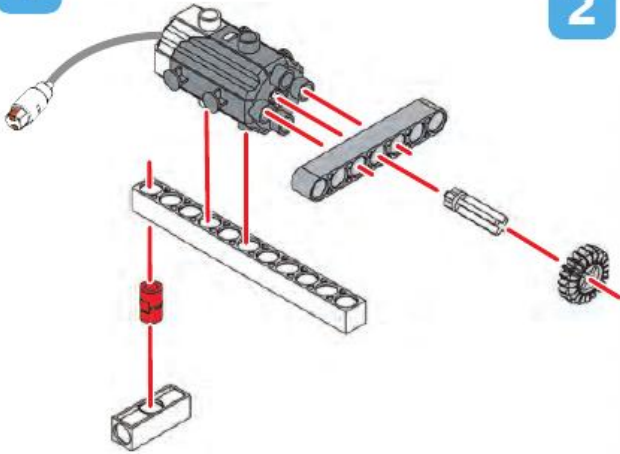
When writing the program, the rotation speed and angles of the helicopter's rotors can be adjusted. When landing, the sensor will detect the ground and deploy landing gear.



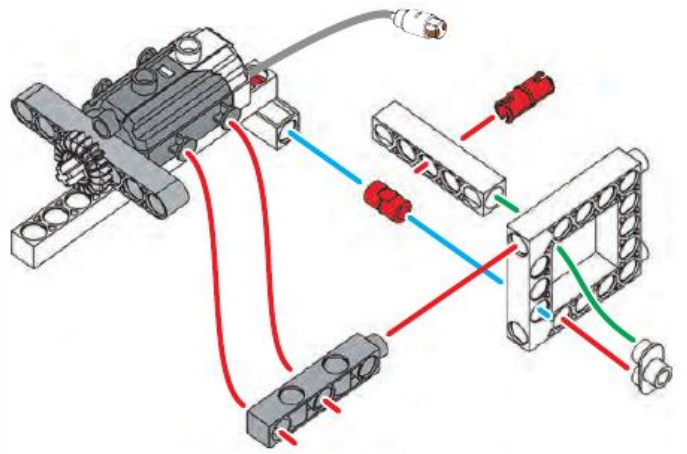
※ This program is preloaded in the app under Program 6. You can edit with your own programs and music.



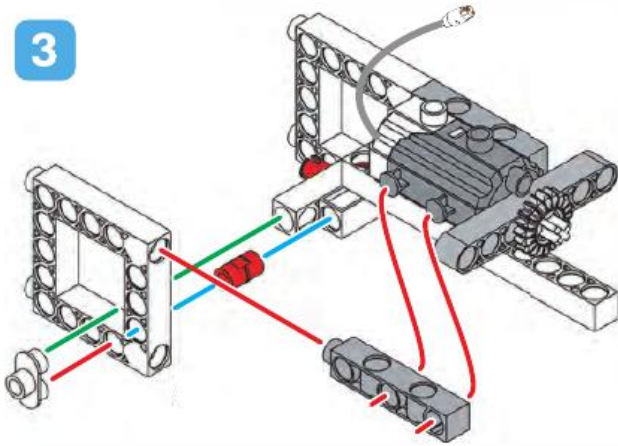
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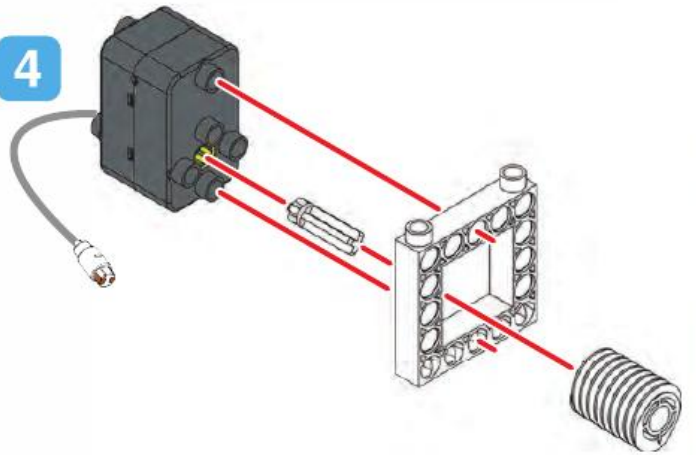
2



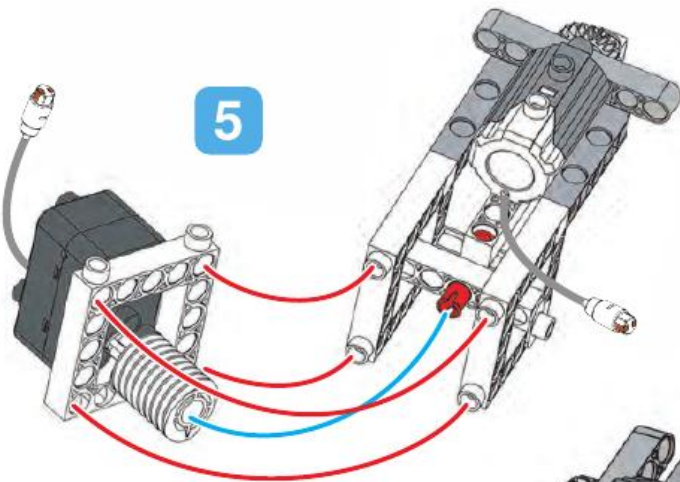
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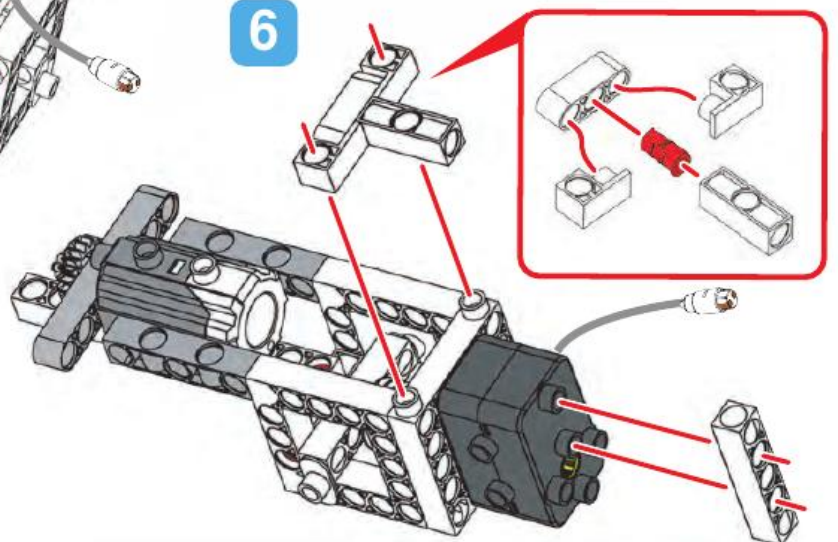
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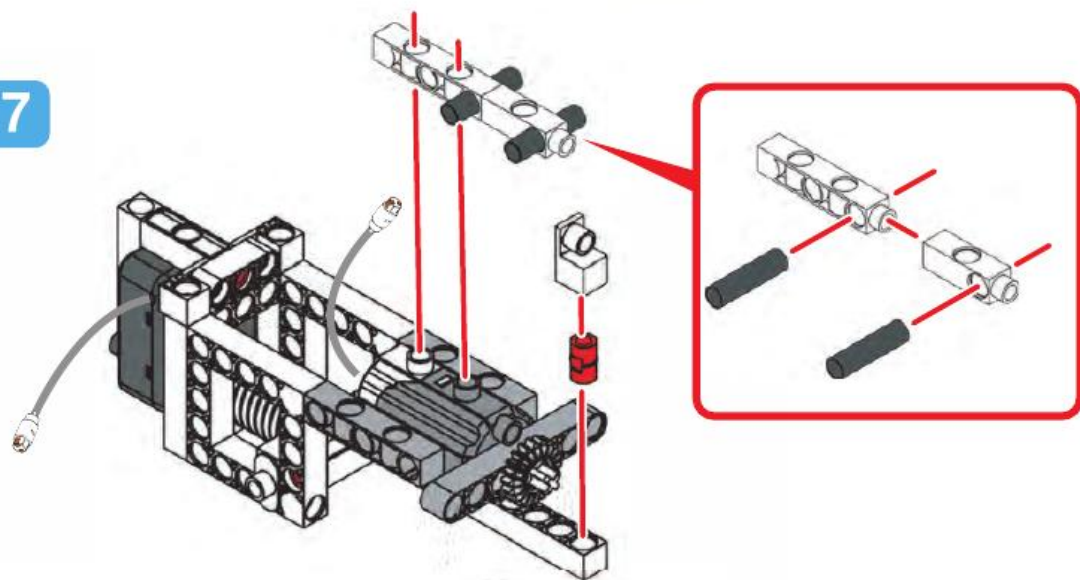
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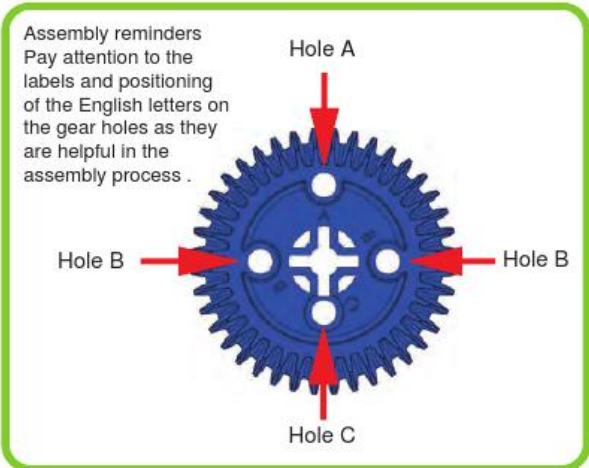
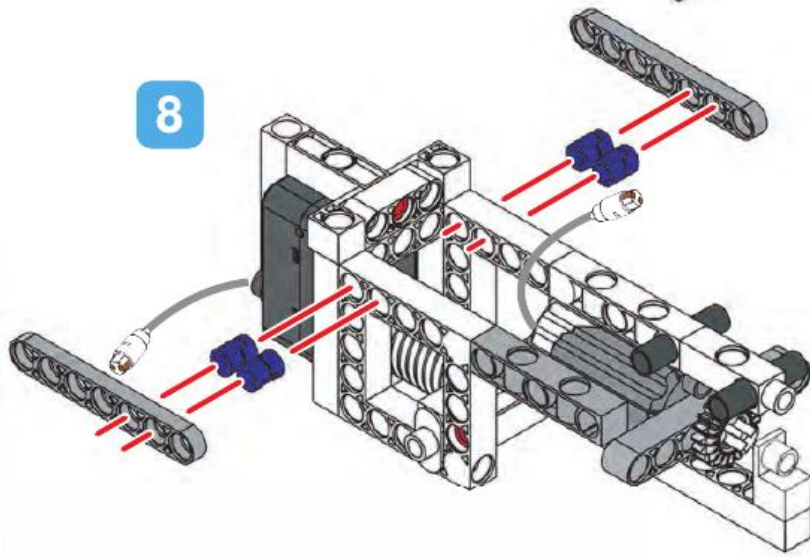
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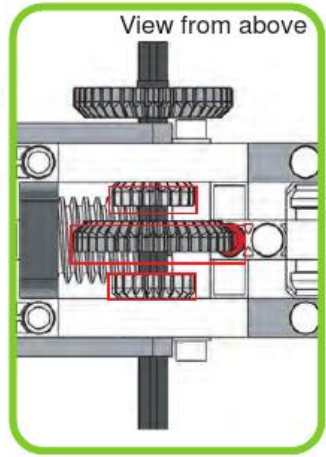
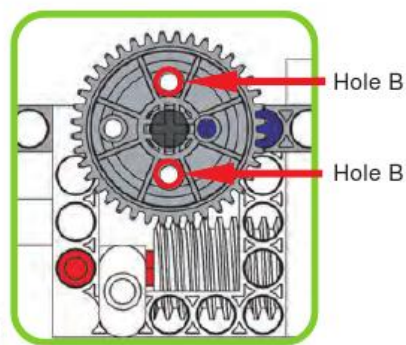
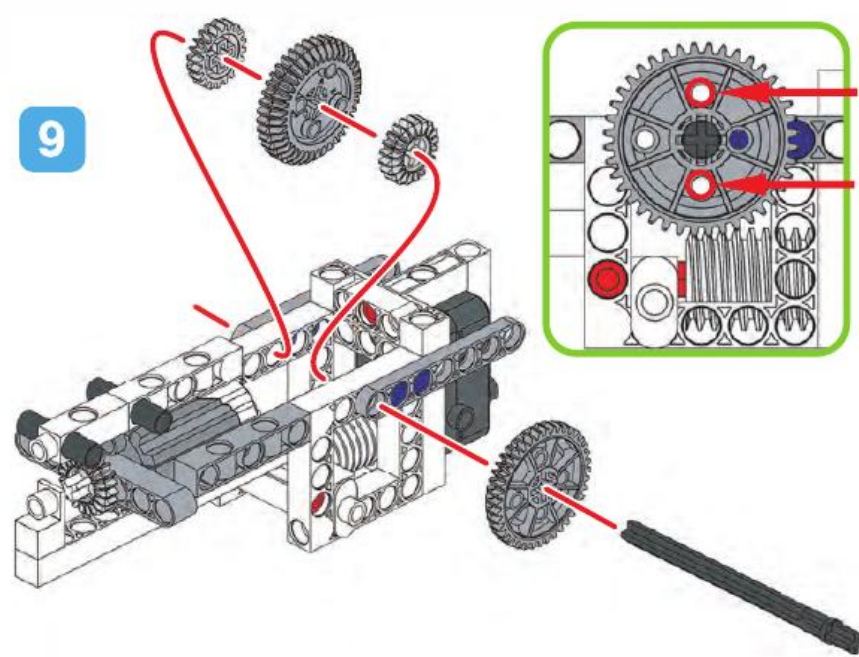
7



8

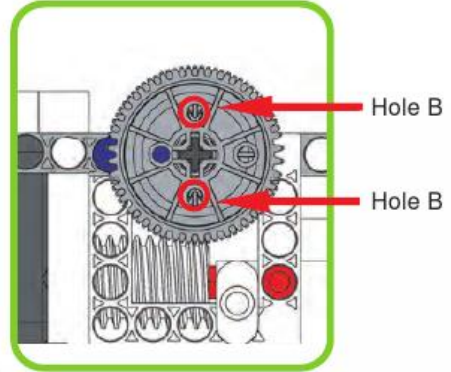
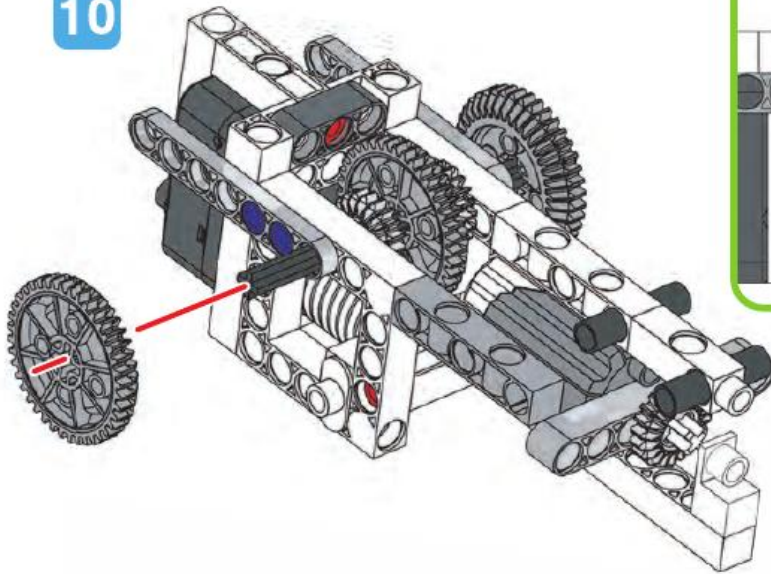


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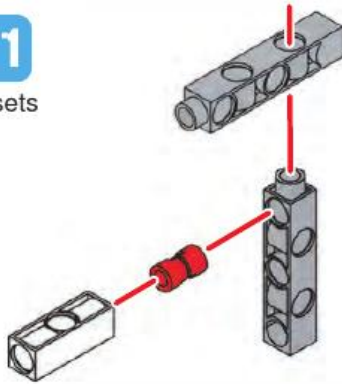


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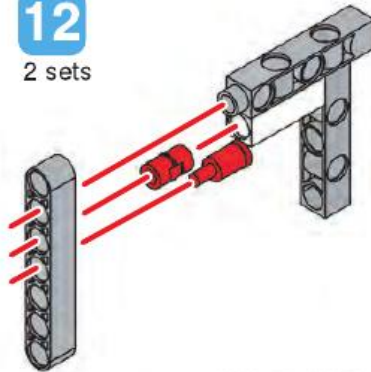
11

2 sets



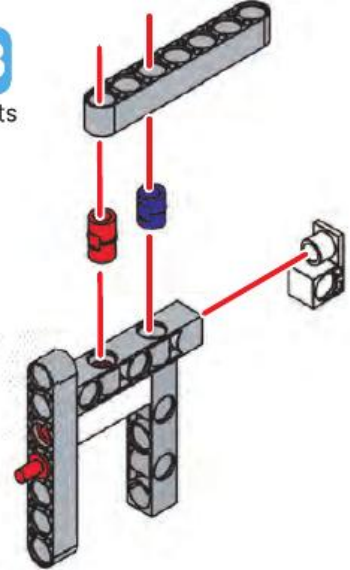
12

2 sets

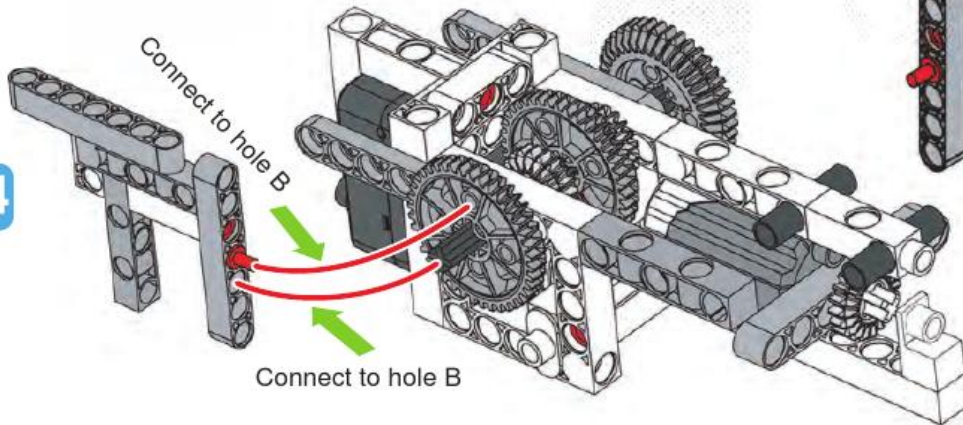


13

2 sets



14

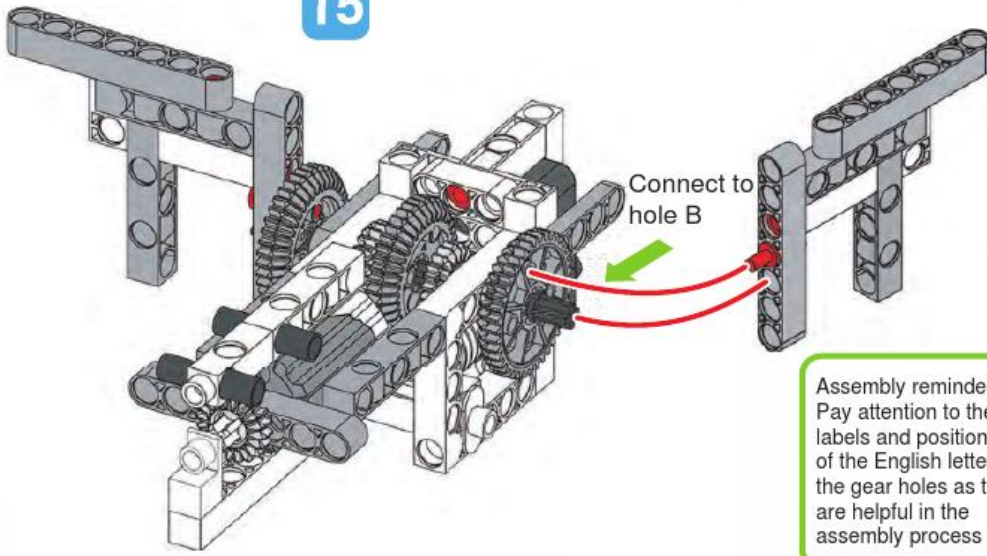


Assembly reminders  
Pay attention to the labels and positioning of the English letters on the gear holes as they are helpful in the assembly process .





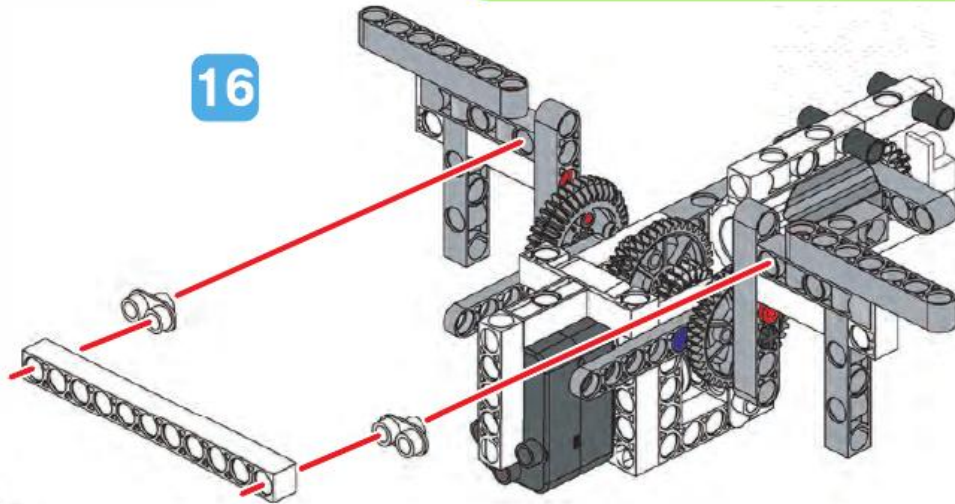
15



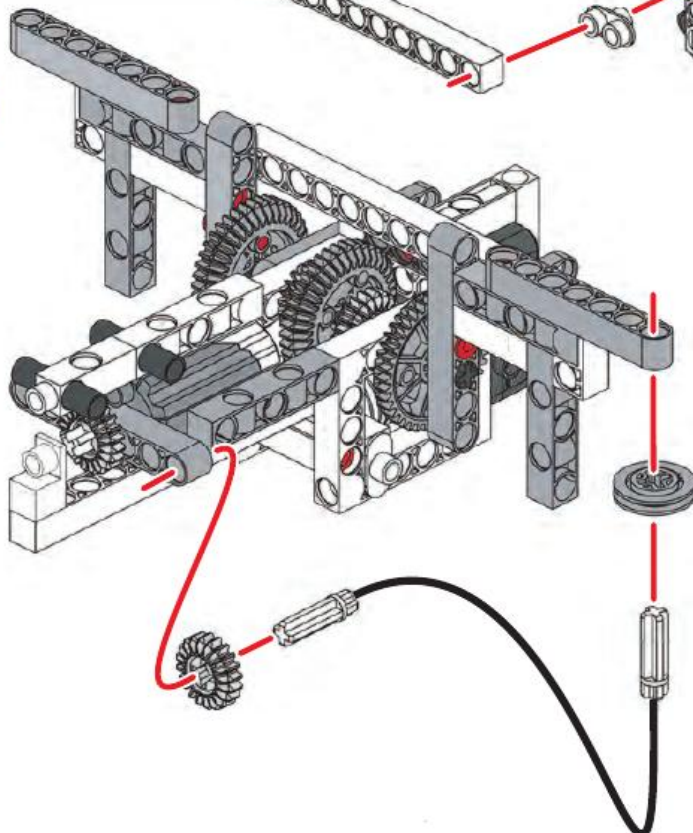
Assembly reminders  
Pay attention to the labels and positioning of the English letters on the gear holes as they are helpful in the assembly process .



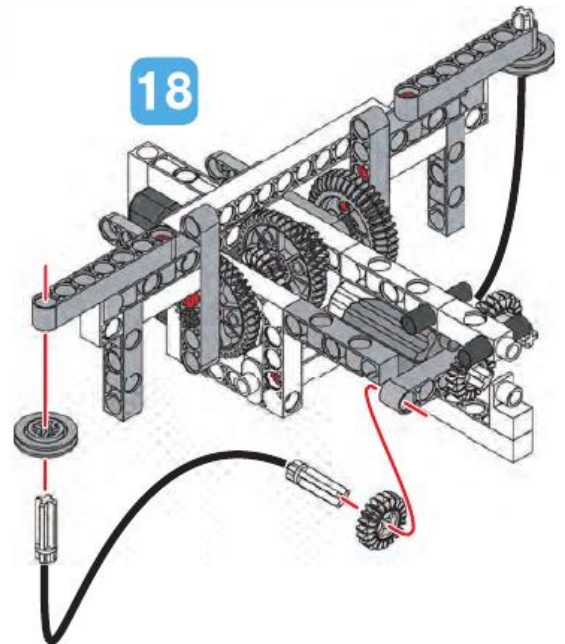
16



17



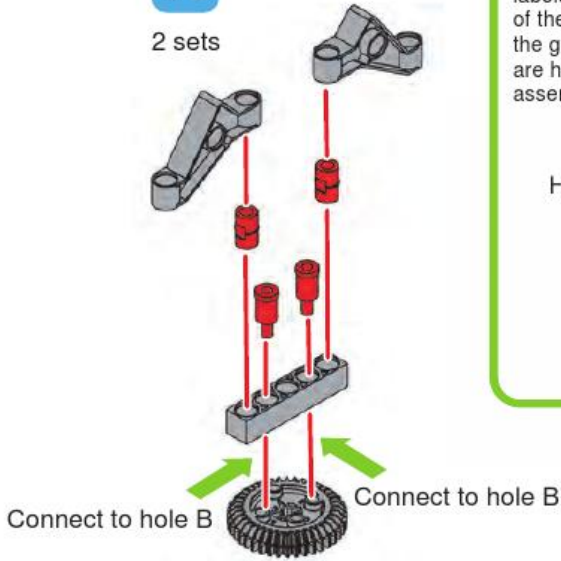
18



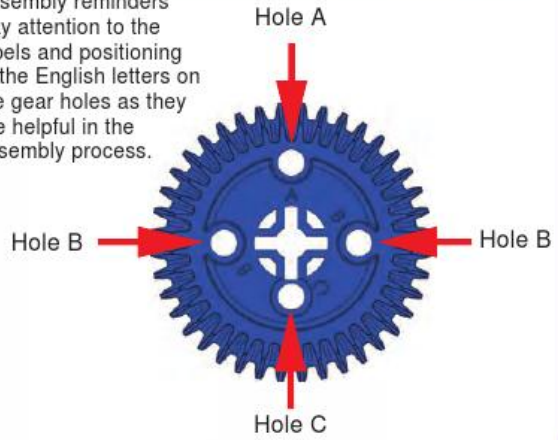


19

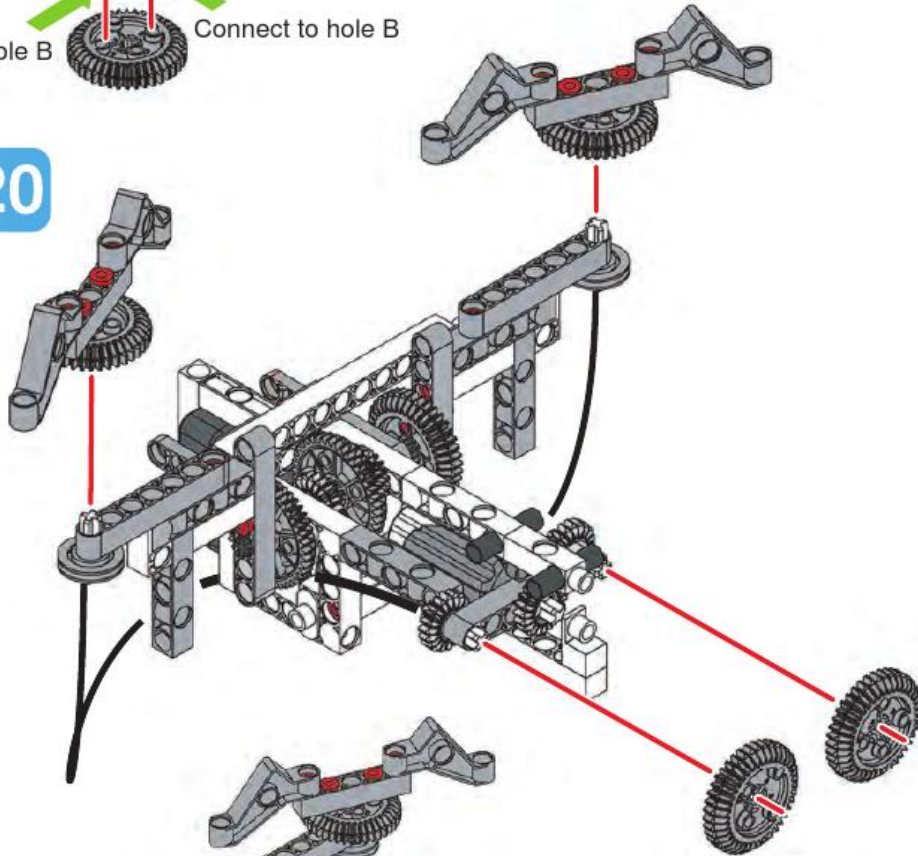
2 sets



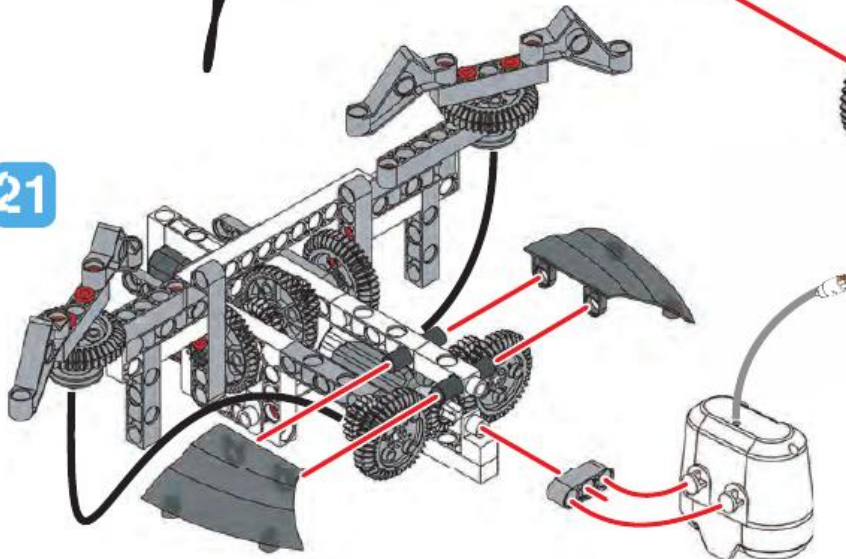
Assembly reminders  
Pay attention to the labels and positioning of the English letters on the gear holes as they are helpful in the assembly process.

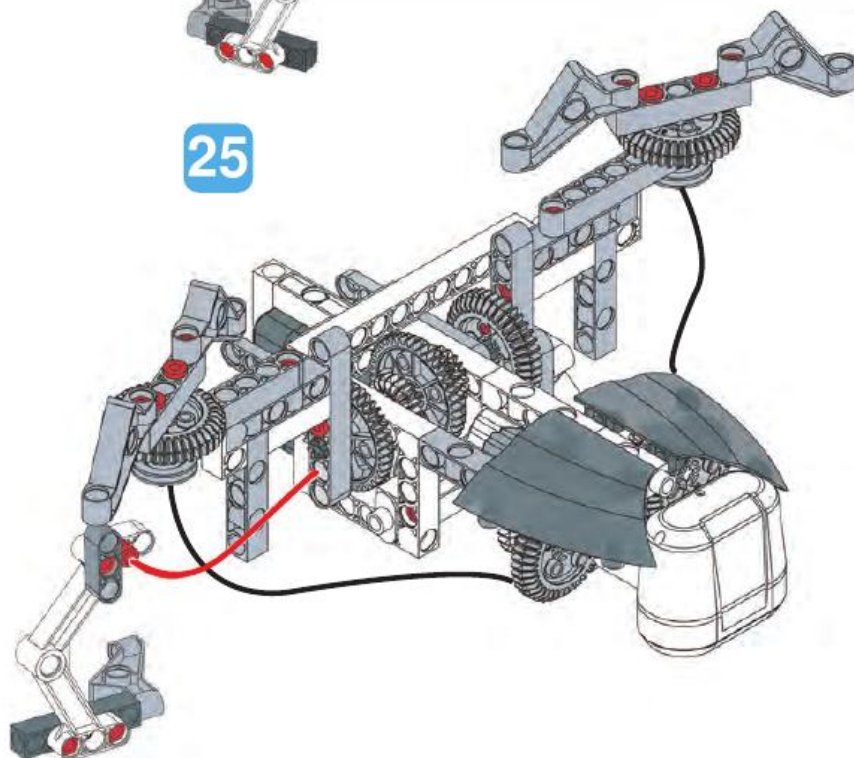
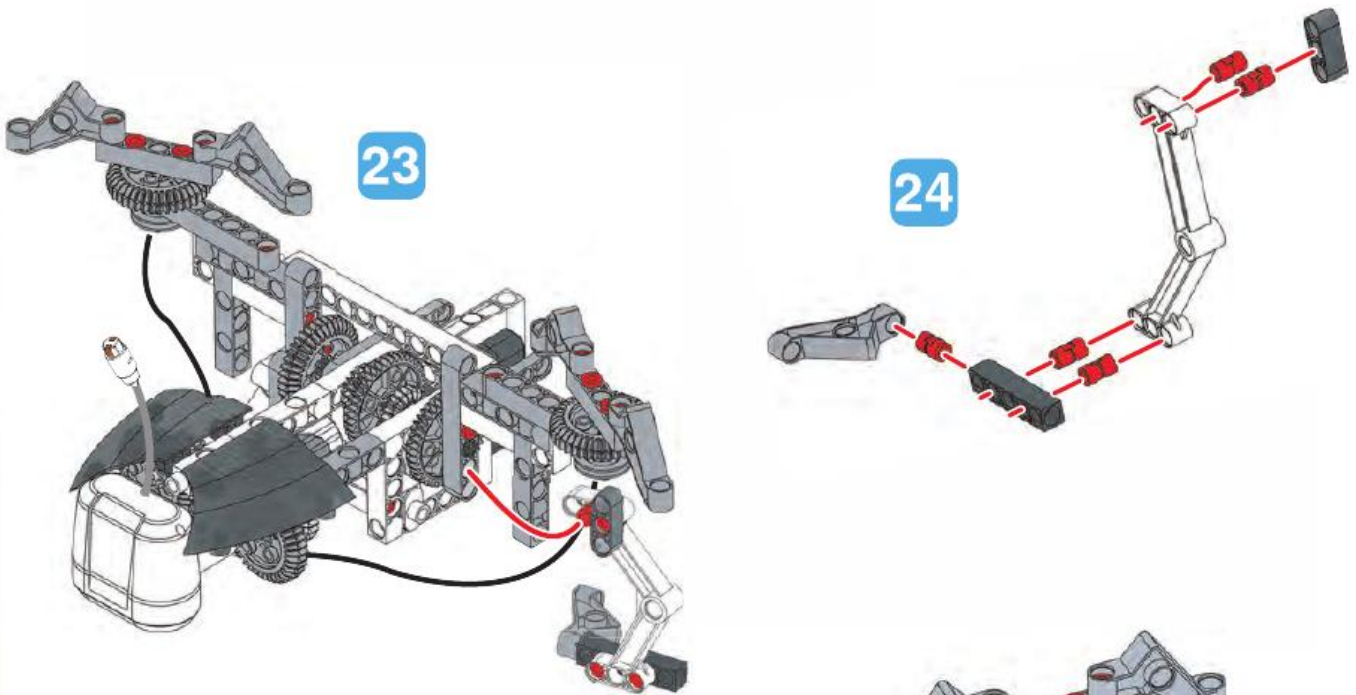
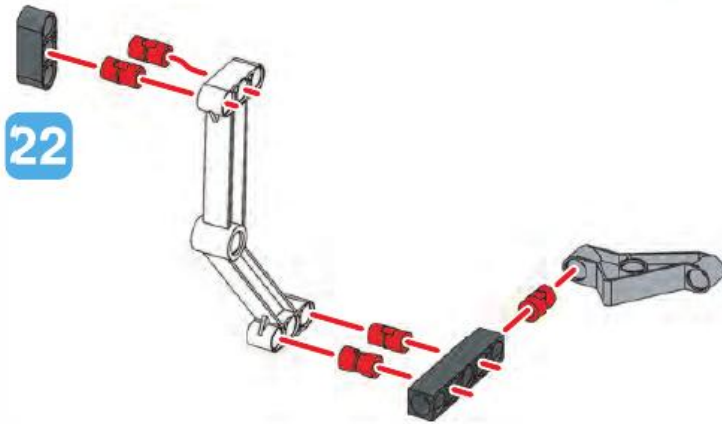


20



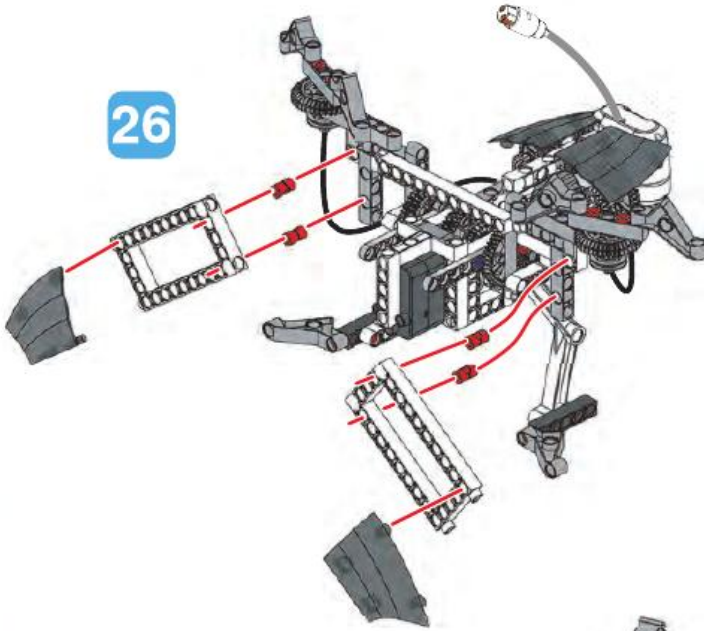
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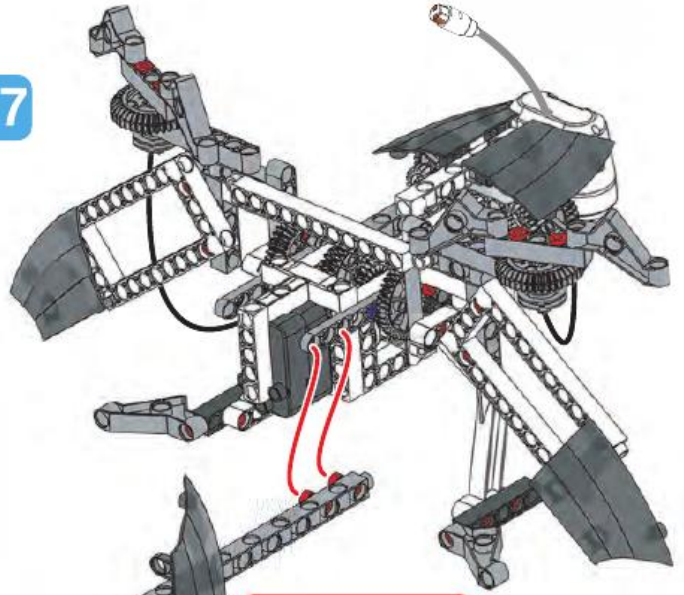




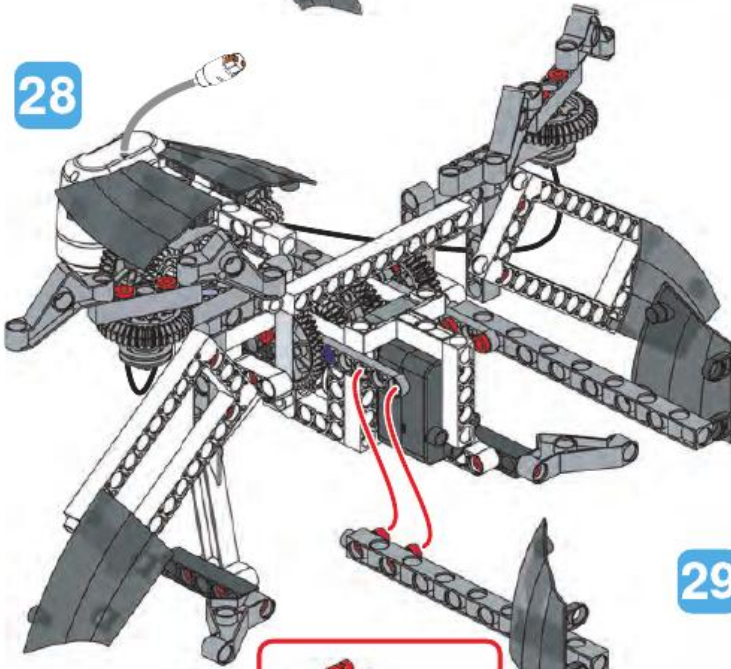
26



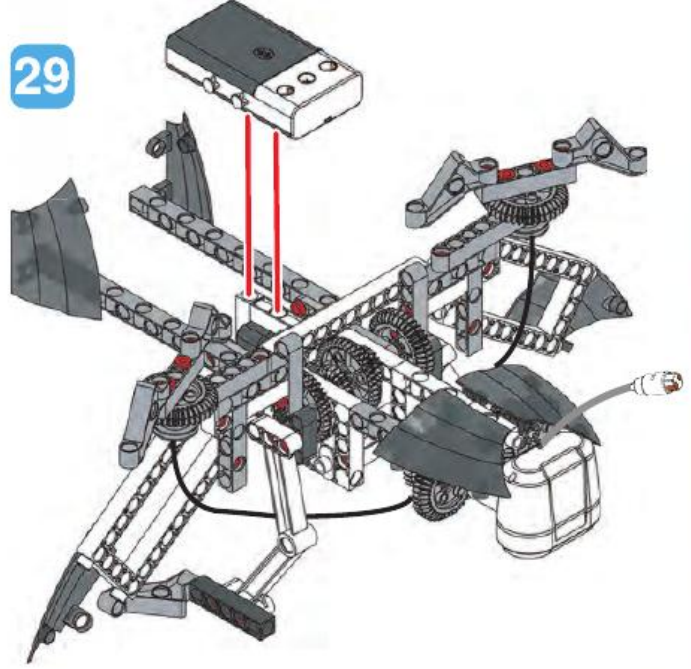
27



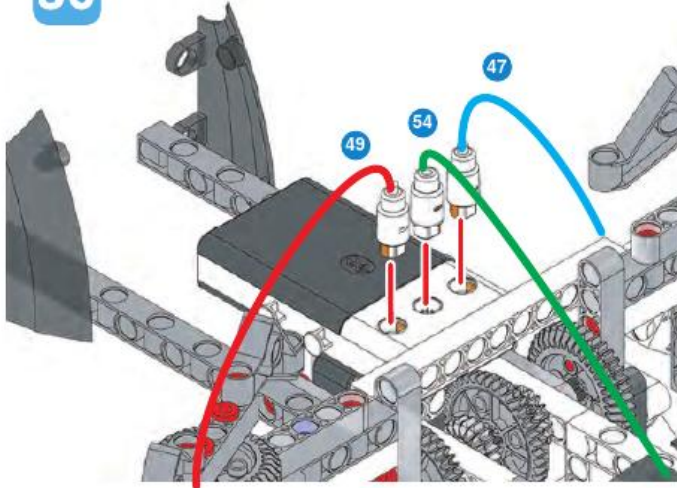
28



29



30



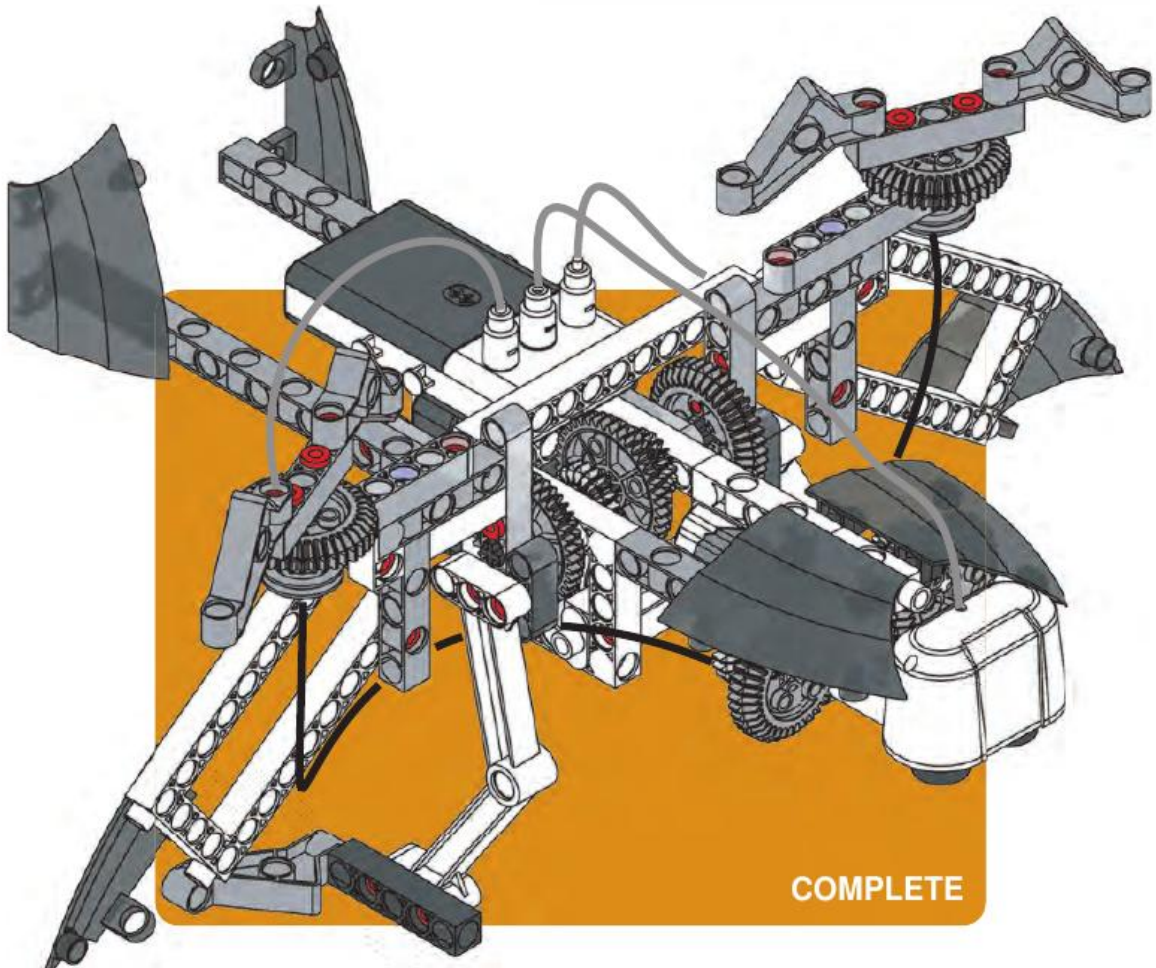
47 Planetary gear motor box's wire



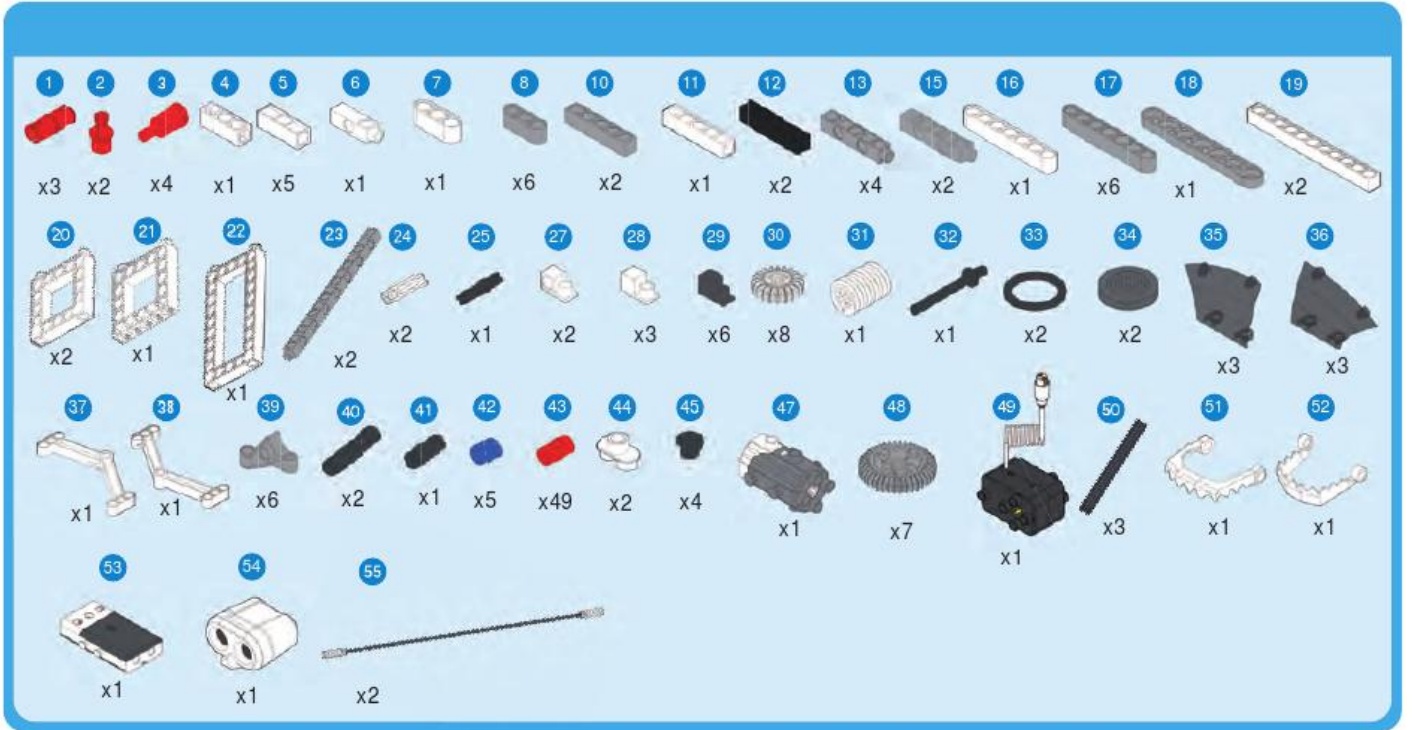
54 Ultrasonic sensor's wire



49 40X motor's wire



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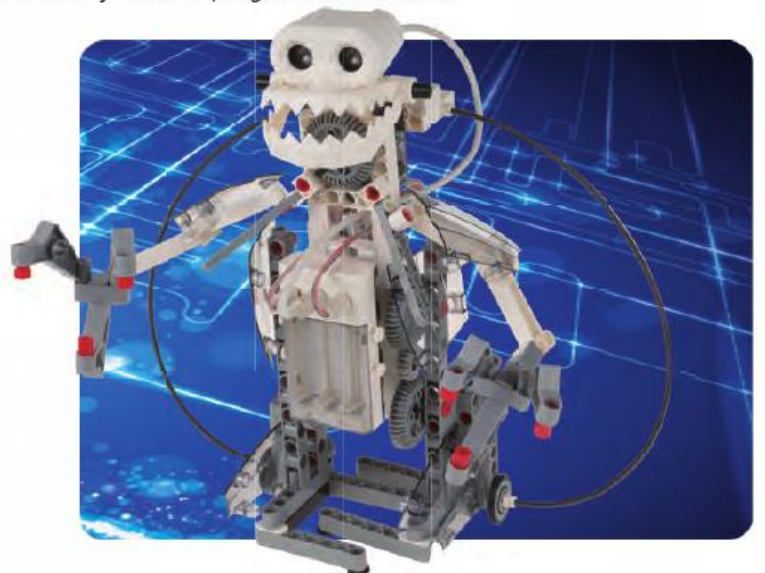
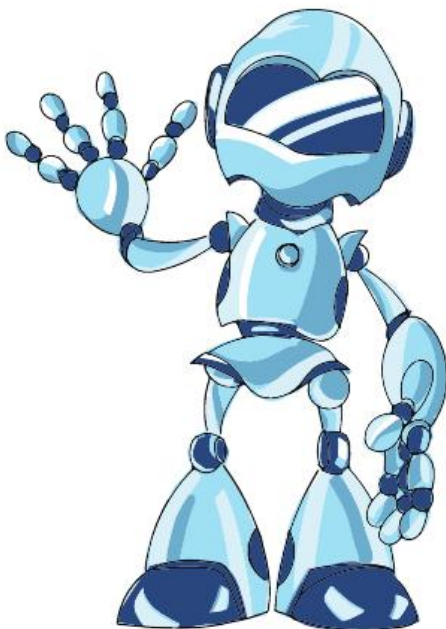


### Robot

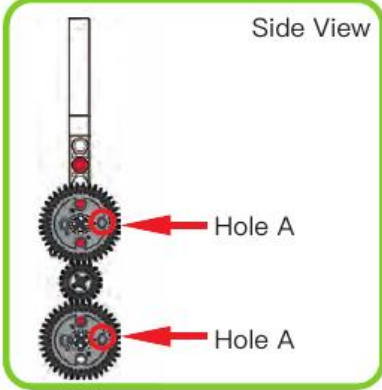
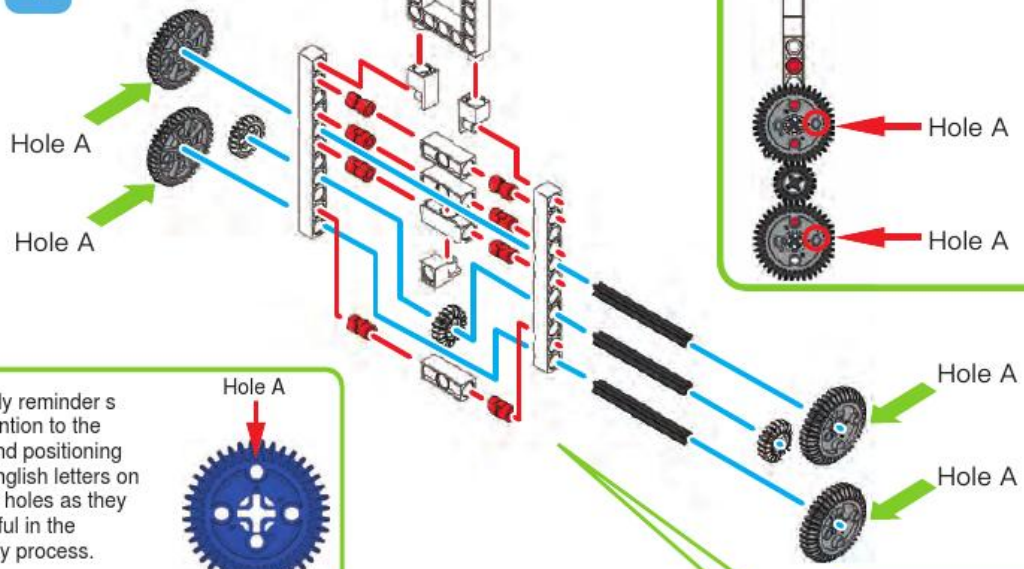
This is a small robot equipped with an ultrasonic sensor so that when it moves forward it will not hit any obstacles. When it detects an obstacle, it backs up then turns before continuing on its way. It's as if he can see what's in front of him! It will always turn to the right, but you can try making it turn to the left. How would you make that adjustment?



※ This program is preloaded in the app under Program 7. You can edit with your own programs and music.

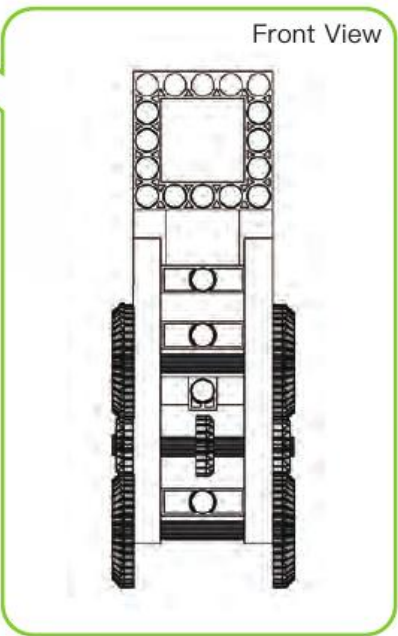


1



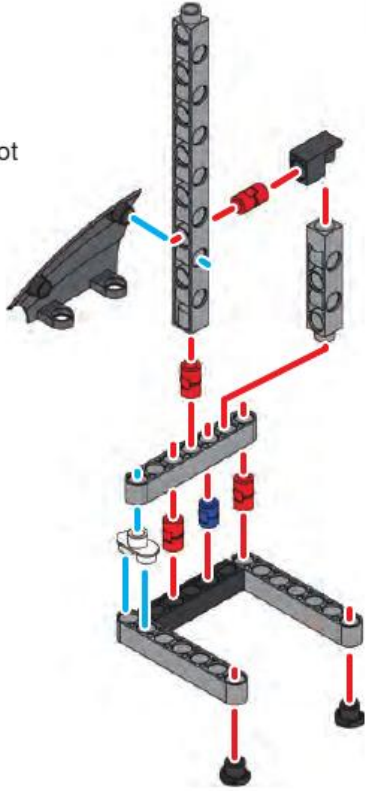
Assembly reminder s  
Pay attention to the labels and positioning of the English letters on the gear holes as they are helpful in the assembly process.

Hole A



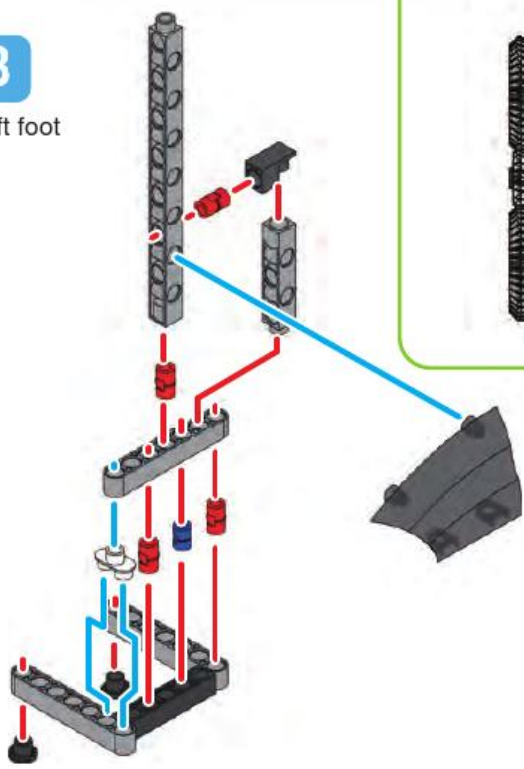
2

Right foot



3

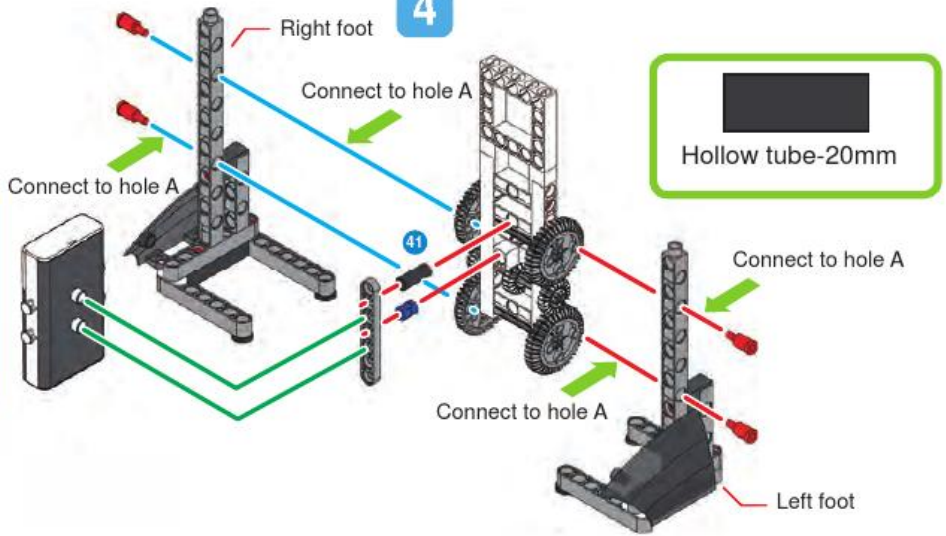
Left foot





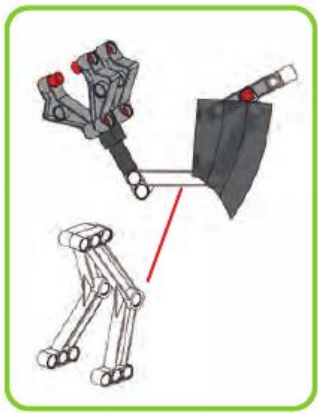
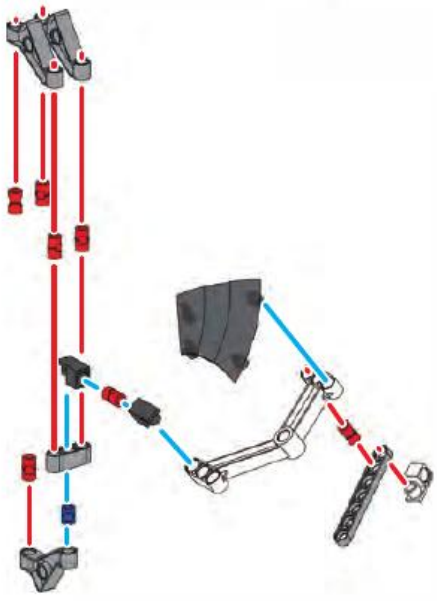
4

Assembly reminder s  
Pay attention to the labels and positioning of the English letters on the gear holes as they are helpful in the assembly process.



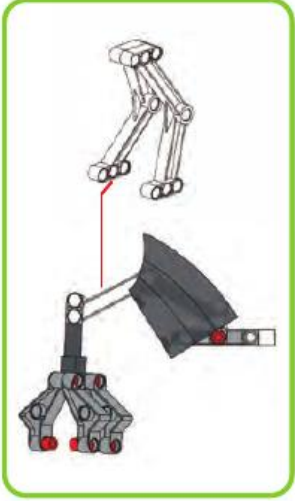
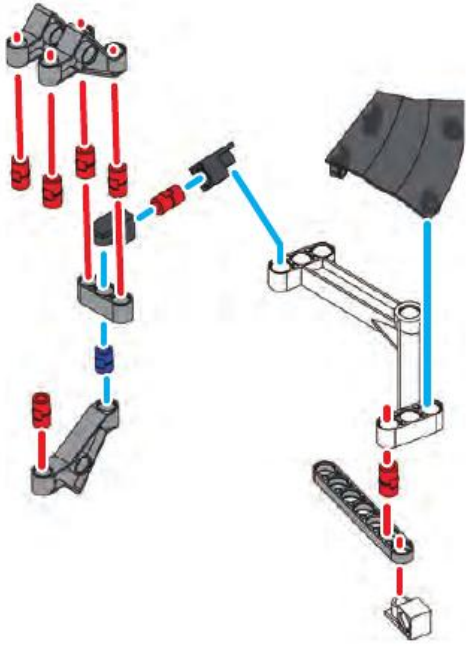
5

Left hand



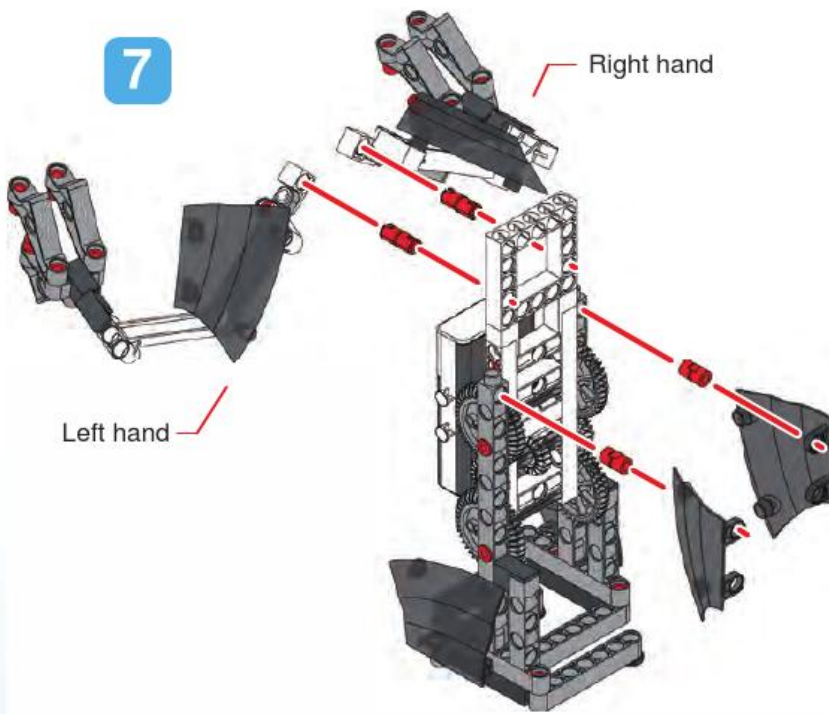
6

Right hand

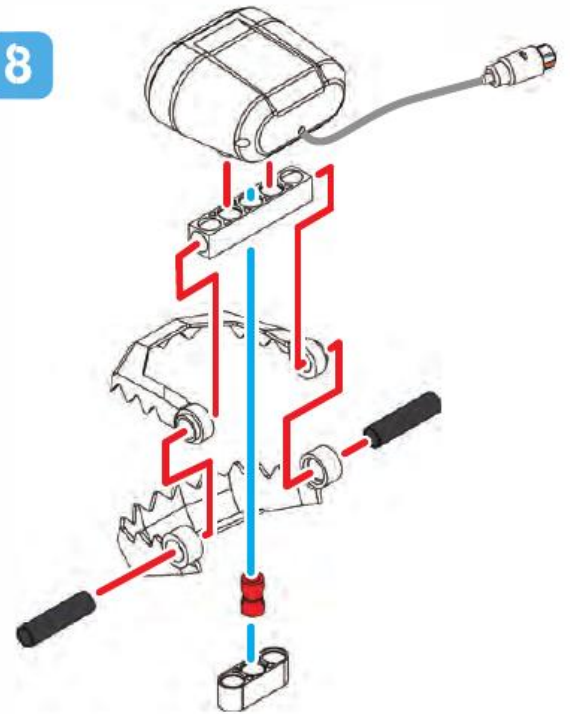




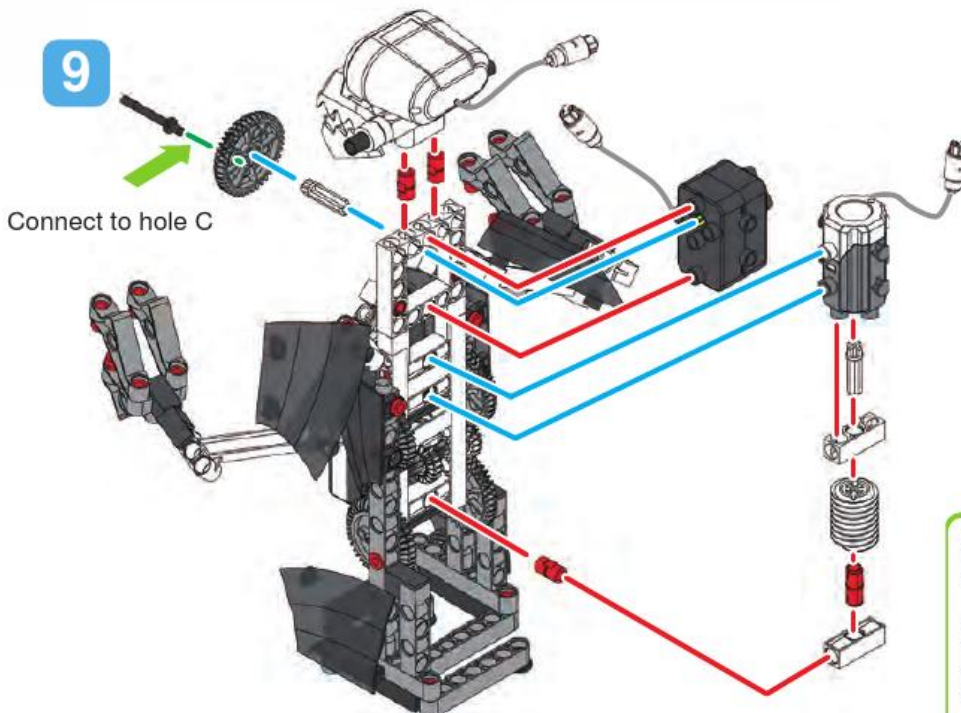
7



8



9

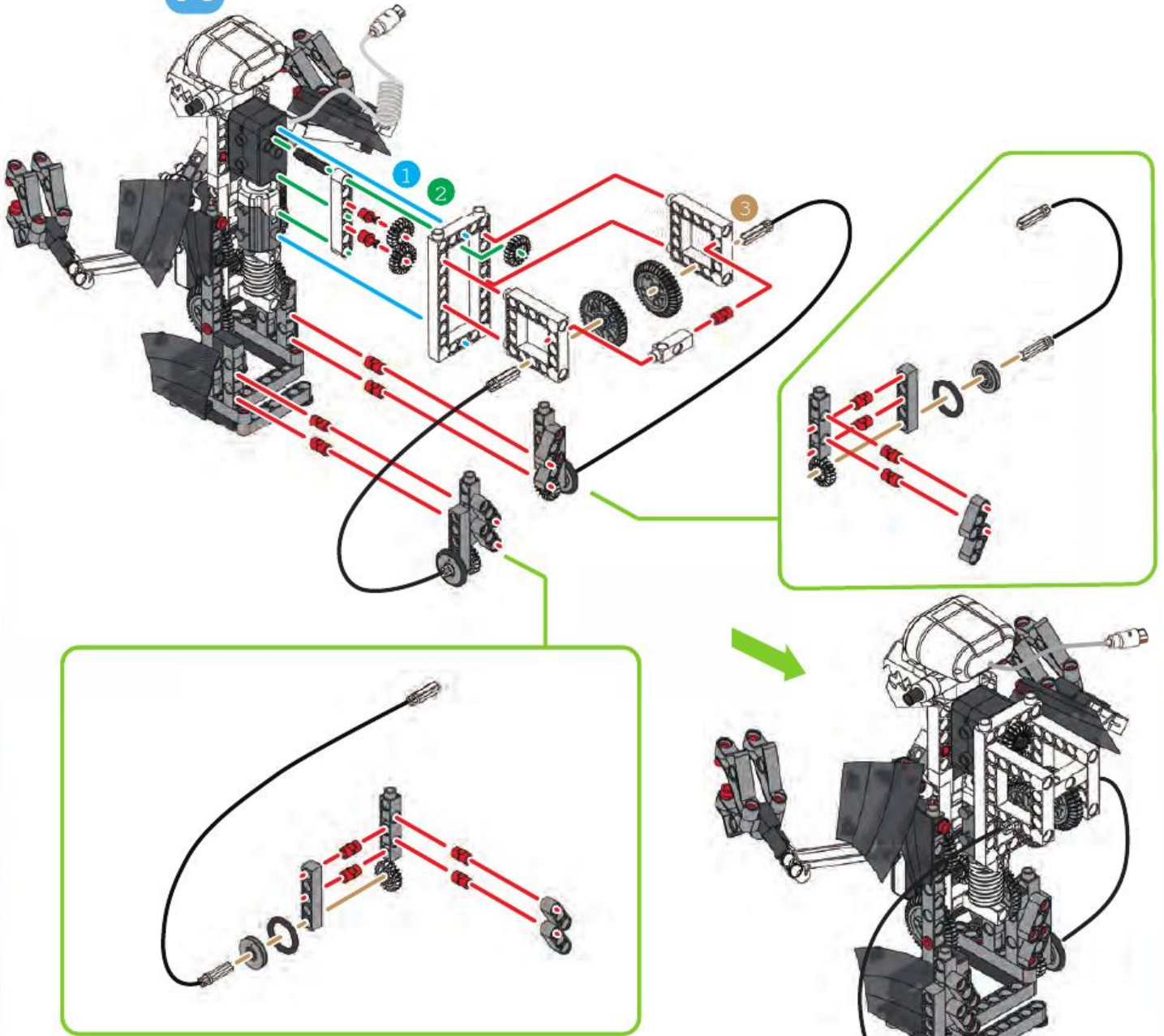


Assembly reminders  
Pay attention to the labels and positioning of the English letters on the gear holes as they are helpful in the assembly process.

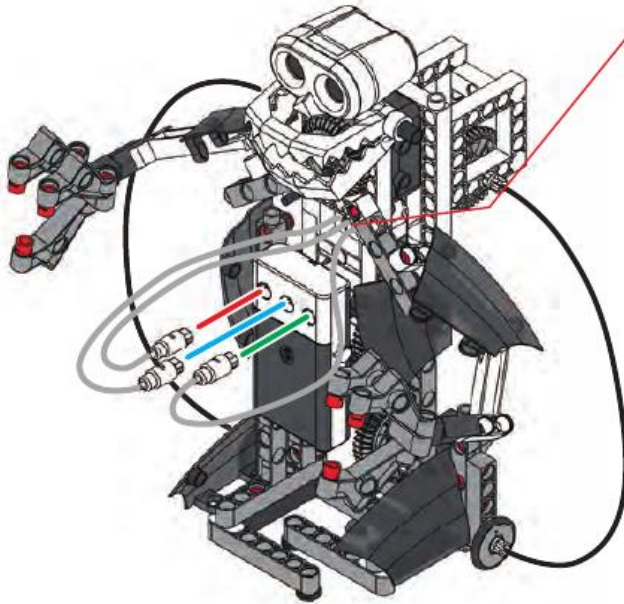




10



Three wires pass through middle frame



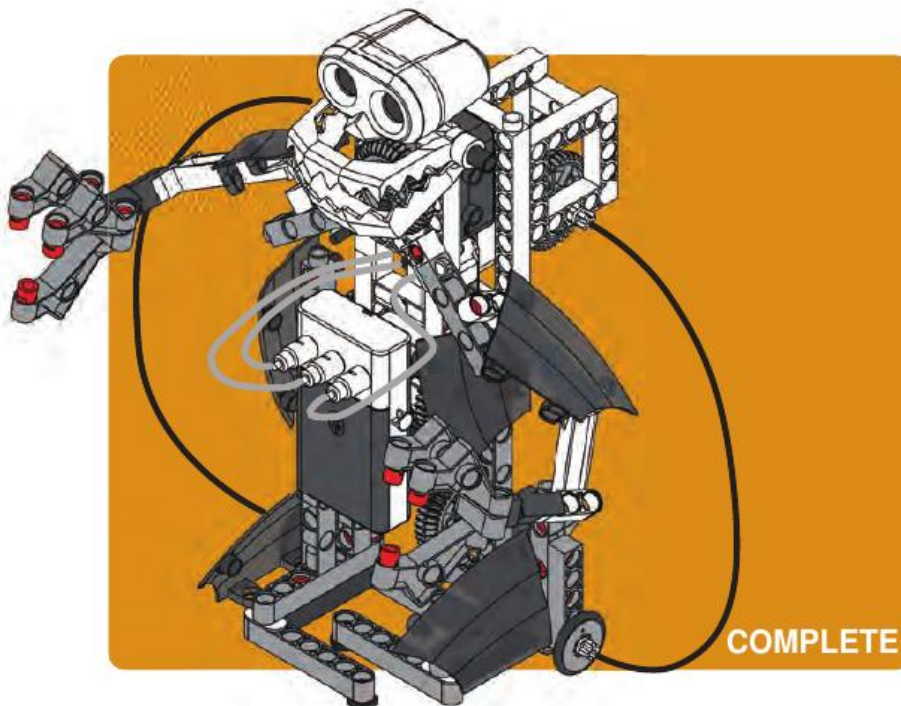
47 Planetary gear motor box's wire



54 Ultrasonic sensor's wire



49 40X motor's wire



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# SMART BRICKS



REMOTE CONTROL MACHINES  
#7335R  
20 Models to build  
151 PCS



ANIMAL MACHINES  
#7336  
8 Models to build  
89 PCS



SPACE MACHINES  
#7337  
10 Models to build  
255 PCS



SAIL CAR  
#7401  
6 Models to build  
40 PCS



ULTRA LIGHT - PLANE  
#7402  
5 Models to build  
44 PCS



RUBBER BAND RACER  
#7403  
5 Models to build  
71 PCS



WIND TURBINE  
#7400  
5 Models to build  
77 PCS



SOLAR EVOLUTION  
#7346  
5 Models to build  
142 PCS



WATER POWER  
#7323  
15 Models to build  
165 PCS



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