



Tyrannosaurus



关注公众号获取更多



T-Rex



0



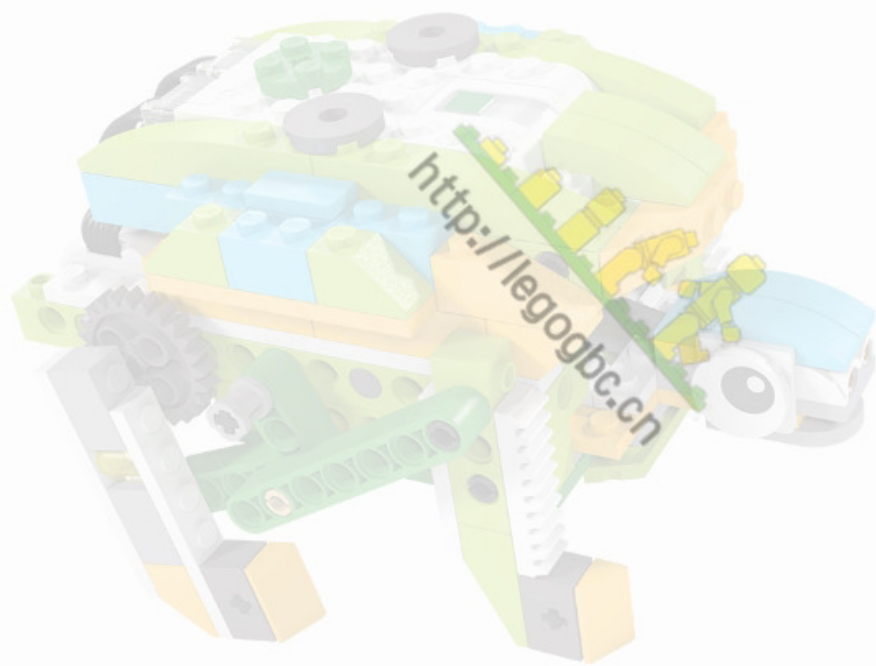
1





Let's remind. Meiolaniidae

Place parts of the robot on the right places



关注公众号获取更多



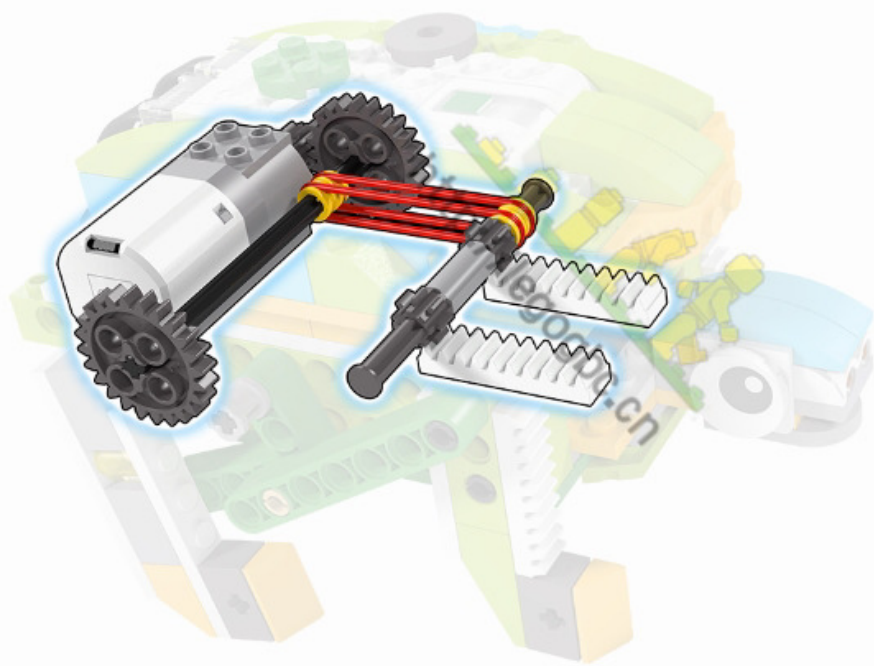
2





Let`s remind. Meiolaniidae

Place parts of the robot on the right places



关注公众号获取更多



2





Let`s remind. Meiolaniidae



关注公众号获取更多

How do turtles breed?



Lay eggs

The live turtles are
born

Lay caviar



4



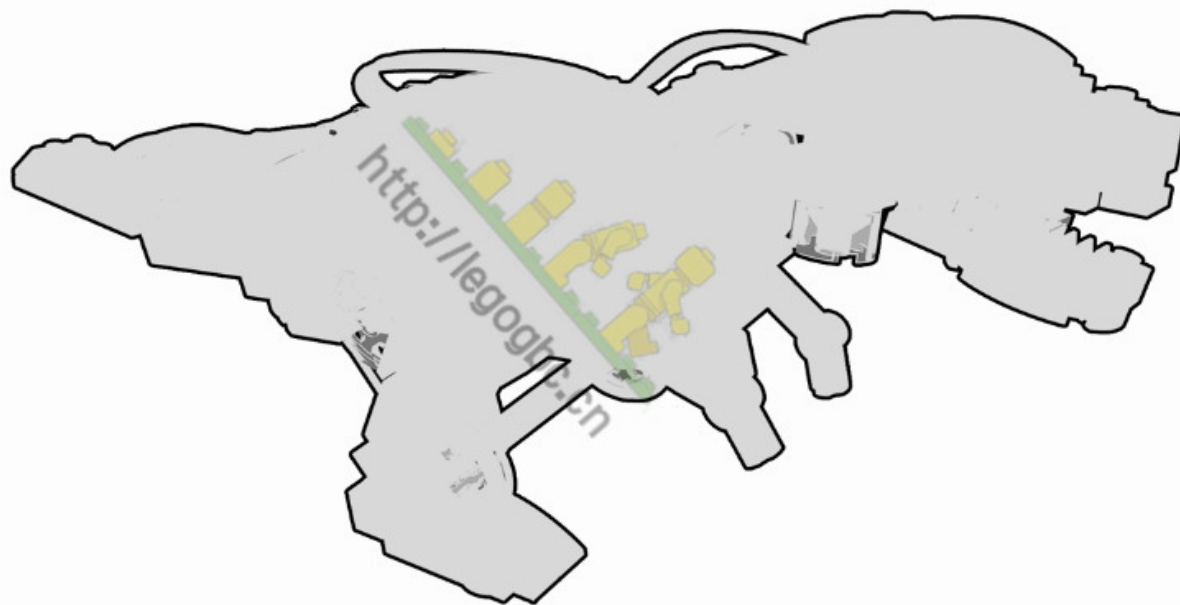
3





Dino Park

Today we continue to create a modern Dino Park. We must develop a robot for the exposition of the predators of the Cretaceous period Mesozoic.



关注公众号获取更多

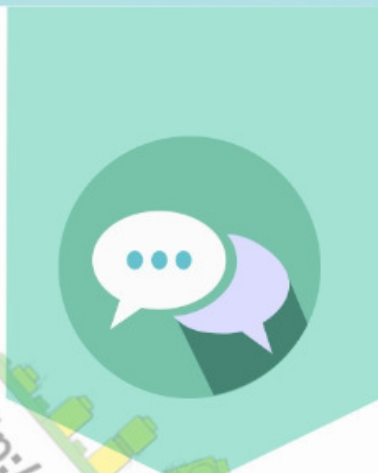




Let`s remind



关注公众号获取更多



Which five groups do dinosaurs divide into the structure of the skeleton?

<http://legooc.cn/>



4



8





The structure of the dinosaur skeleton



关注公众号获取更多

Scientists have come to the conclusion that most of the found skeletons of the dinosaurs by structure can be attributed to one of

Dinosaurs from which groups did you already create?



THEROPODS



SAUROPODS

DINOSAURS

STEGOSAURUS



ORNITHOPODS



CERATOPS



4



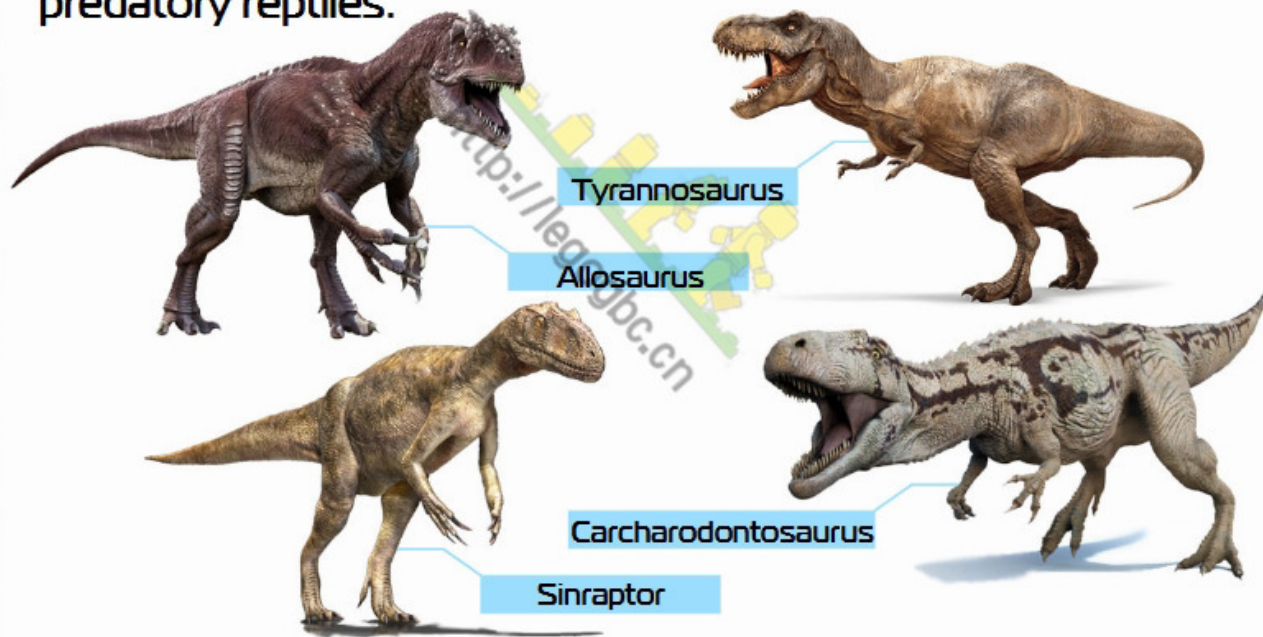
9





Theropods

Theropods - a group of dinosaurs that walked on two rear legs. These were the most effective predators of their time. They existed from the late Triassic period to the late Cretaceous (230-65 million years ago). These include Tyrannosaurus and other predatory reptiles.



关注公众号获取更多



4

10





Theropods group hunting



关注公众号获取更多



4



11





Let`s remind



关注公众号获取更多



<http://legoabc.cn>

What features of the skeleton structure allowed the Theropods to move on two legs?



4



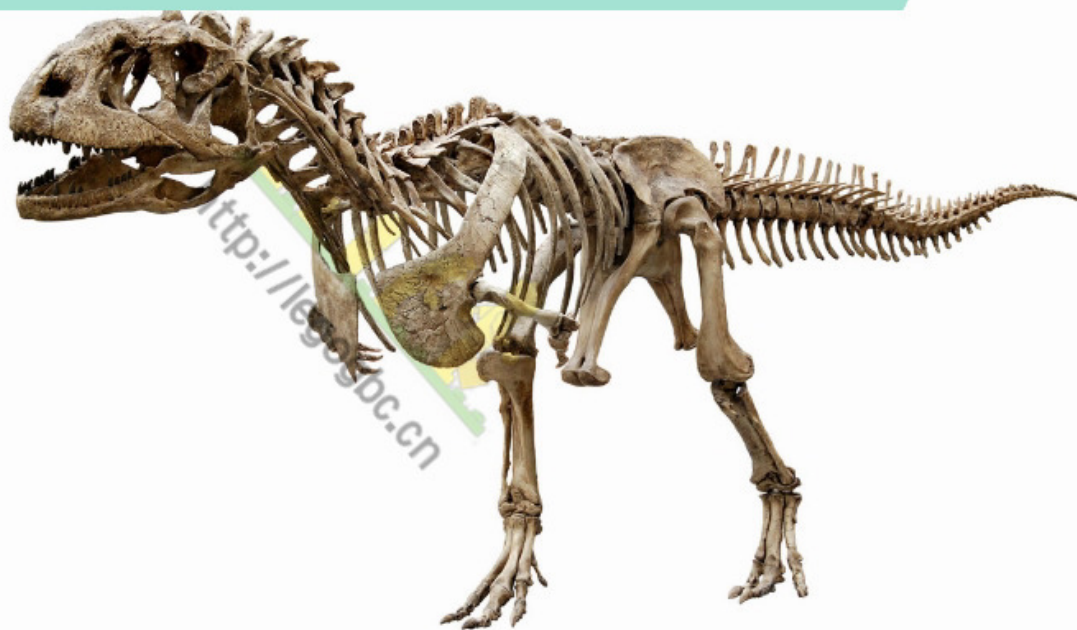
12





Theropods

Theropods have a specific leg structure that allows to carry all weight of the dinosaur only on two legs. The tail was used as a balance.



关注公众号获取更多



4



13





The first dinosaur

Scientists believe that one of the first dinosaurs were Theropods. For example, Eoraptors existed 230 million years ago and had a length up to 1 meter. They hunted for small lizards.



关注公众号获取更多



14



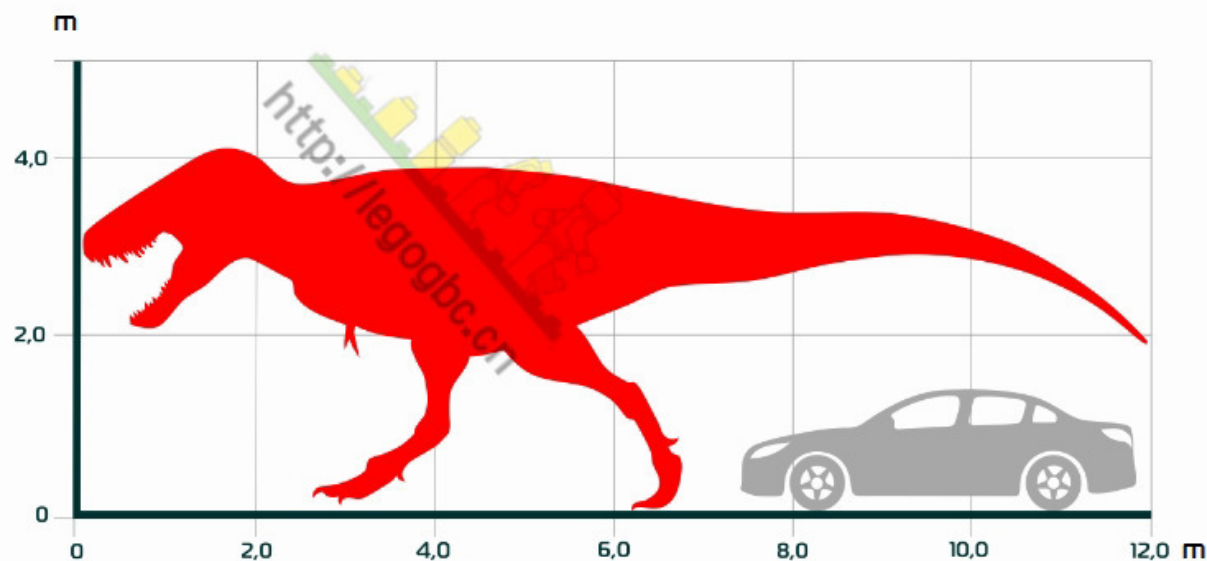


Tyrannosaurus

Tyrannosaurs had a length of 12 meters and a weight of 9 tons. They hunted on Triceratops and other herbivorous dinosaurs.



关注公众号获取更多



4



15





Tyrannosaurus

Investigation of fossilized remains of Tyrannosaurus shows that adult individuals had scaly skin, and the skin of the young could be covered with primitive feathers.



关注公众号获取更多



4



16





Tyrannosaurus

The front paws of Tyrannosaurus had only two fingers and could not even reach out to the mouth. However, the predator could use them to hold the prey.



关注公众号获取更多



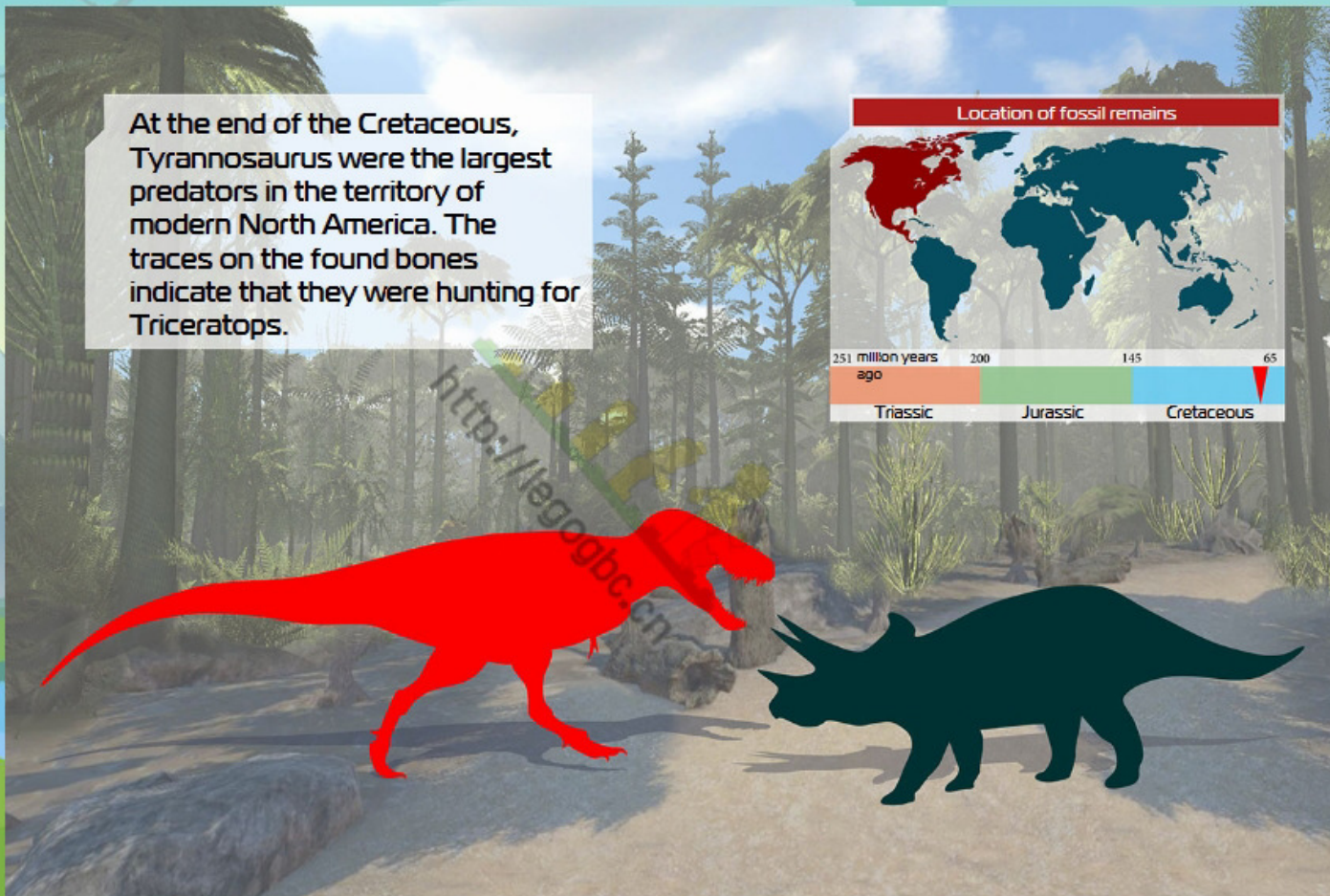
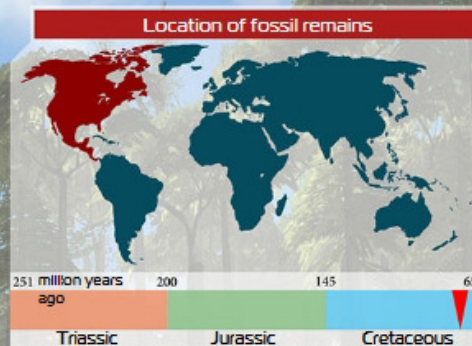


Tyrannosaurus



关注公众号获取更多

At the end of the Cretaceous, Tyrannosaurus were the largest predators in the territory of modern North America. The traces on the found bones indicate that they were hunting for Triceratops.



4



18





Dino Park



关注公众号获取更多

Tyrannosaurus is the largest predator that was on the planet during the heyday of dinosaurs. And thanks to the films, it is also one of the most famous. Its abbreviated is called T.Rex. From Latin it means "king of lizard-tyrants".



4



19





Other predators

On dry land, Tyrannosaurus was the largest but not the only predator of the Cretaceous period. For example Sarcosuchus giant crocodiles up to 10 meters eat fish and small dinosaurs. Very similar to modern crocodiles, Sarcosuchus were their distant relatives.



关注公众号获取更多



4



20





TASK



关注公众号获取更多



Task



create a robot for the exposition of predators of the Cretaceous period



Requirements



must be Theropod and move on two legs

must have a high speed



Tyrannosaurus's appearance



4



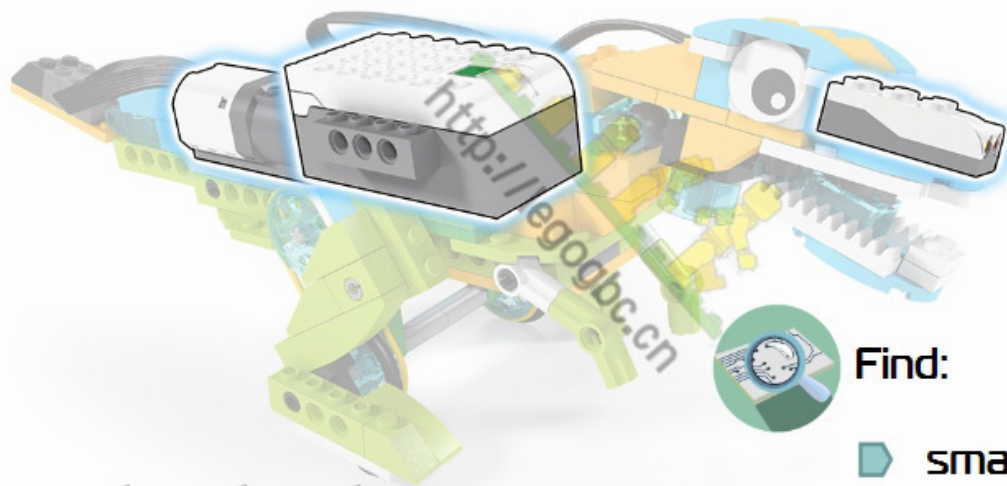
22





Design features

T-Rex uses the motor for wheel drive. The motion sensor is placed so that the robot "see" the pray and obstacles in the way of movement.



Find:

- smarthub
- motor
- motion sensor



关注公众号获取更多



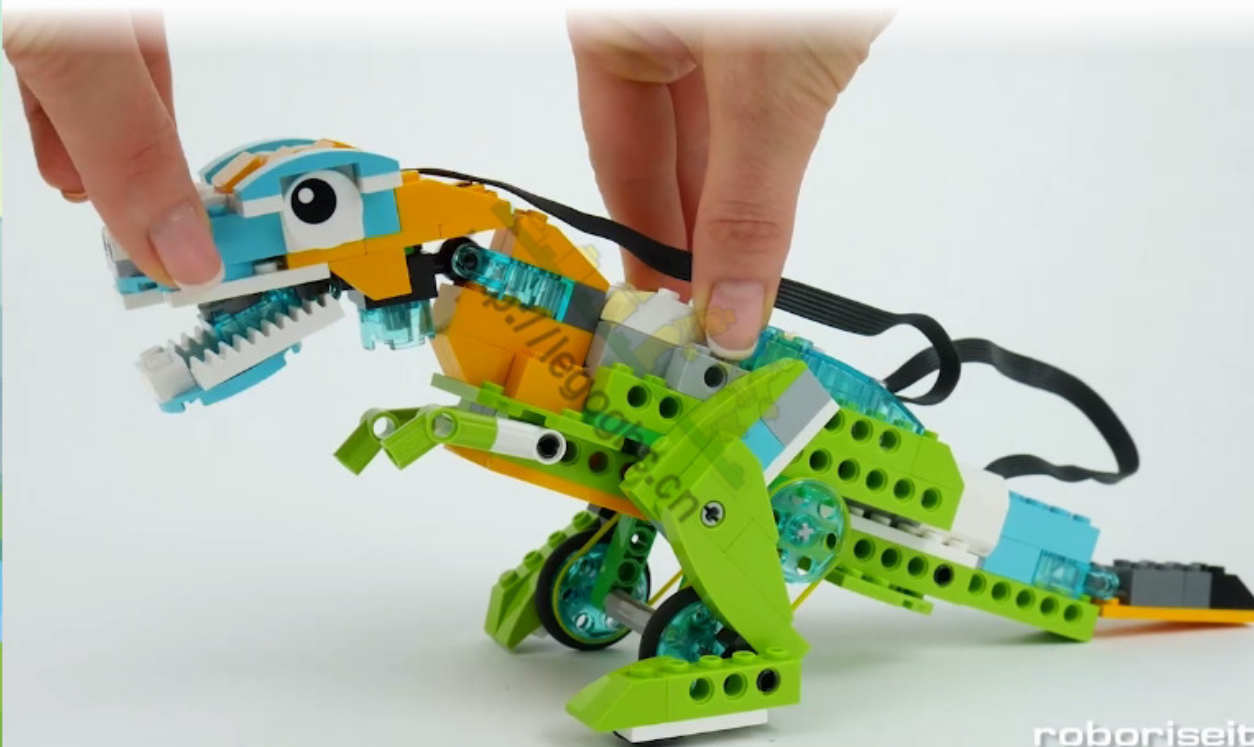
23





Design features

The main weight of the robot is placed high enough so the robot is not stable during the braking. Take this into account when programming!



roboriseit.com



关注公众号获取更多



4



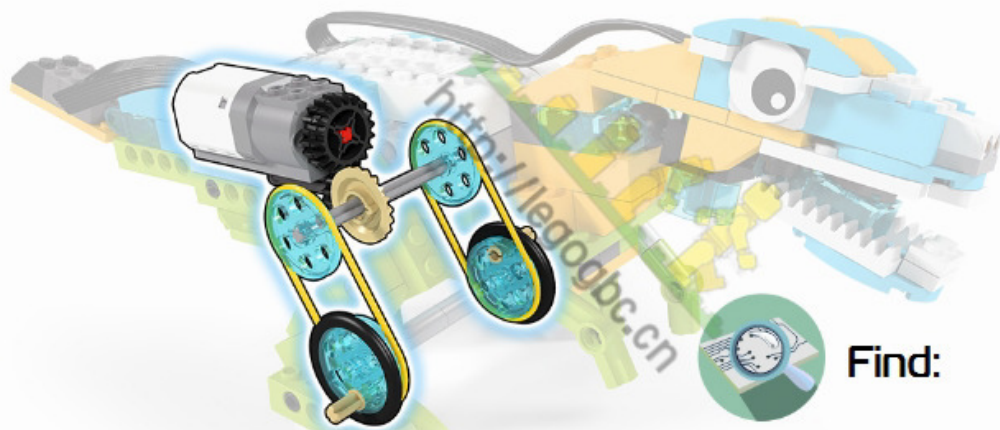
24





Design features

The rotation from the motor to the wheels is transmitted through a direct gear, an angular gear, and then - through a belt drive.



Find:

- direct gear
- angular gear
- belt drives



关注公众号获取更多



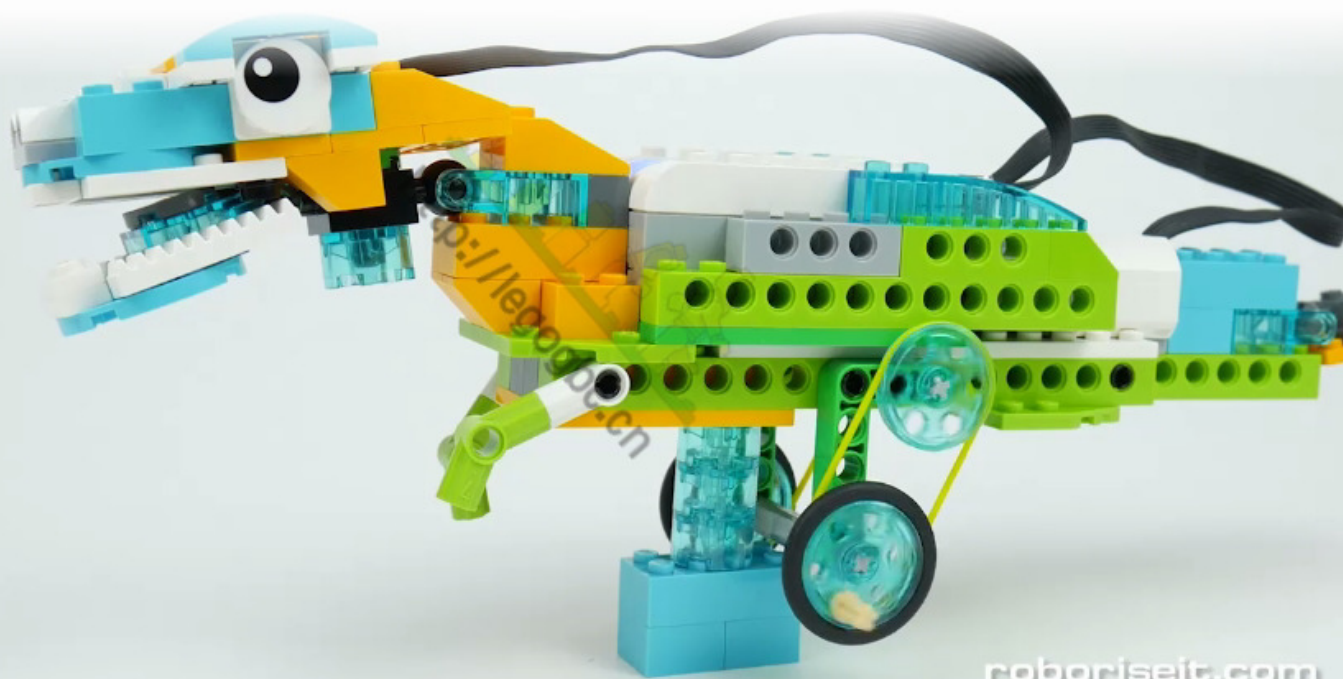
25





Design features

T-Rex - one robot in the park that moves on wheels. This makes it the fastest. Legs perform only a decorative function.



roboriseit.com



关注公众号获取更多



26





Design features

T-Rex - one robot in the park that moves on wheels. This makes it the fastest. Legs perform only a decorative function.



roboriseit.com



关注公众号获取更多



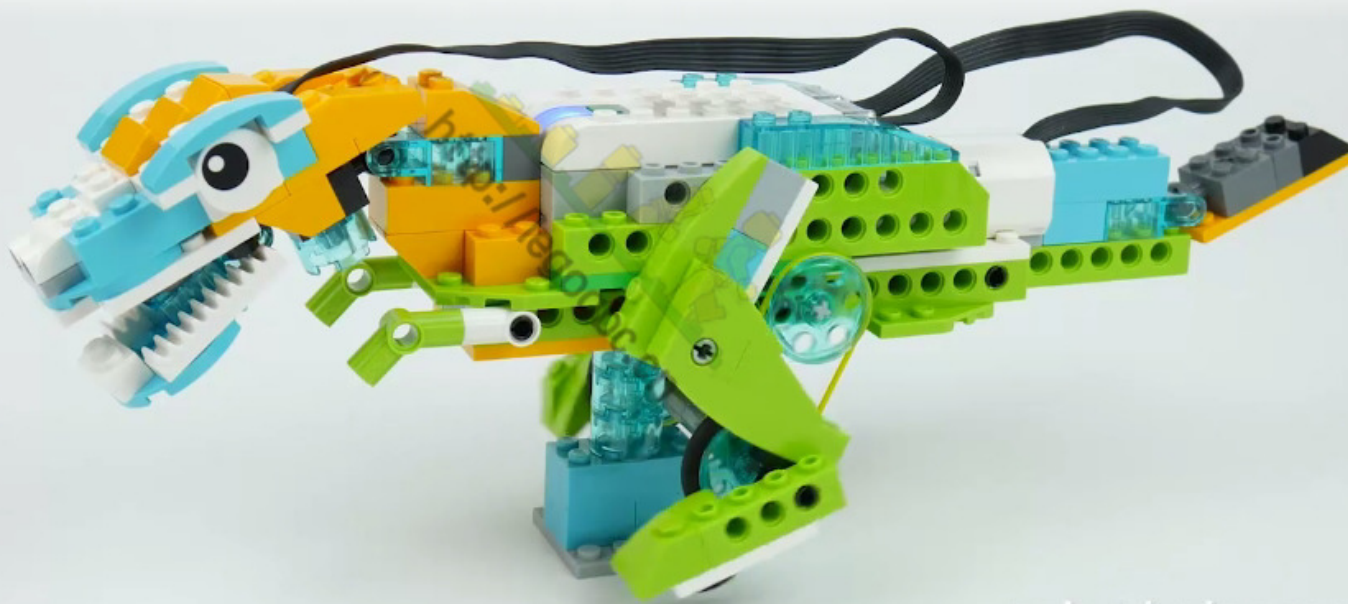
26





Design features

T-Rex - one robot in the park that moves on wheels. This makes it the fastest. Legs perform only a decorative function.



roboriseit.com



关注公众号获取更多



4



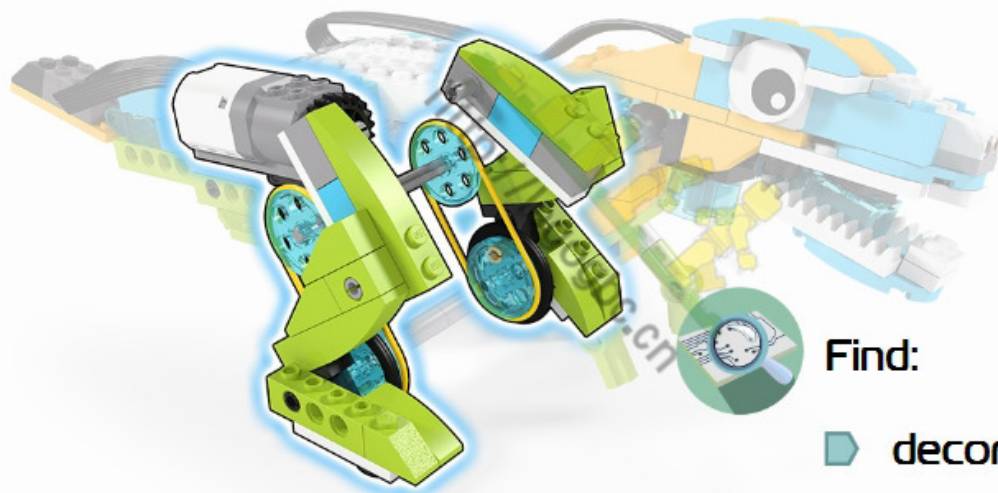
26







Design features

In general, the robot chassis looks like this:



Find:

-  decorative leg
-  motor and wheels



关注公众号获取更多



27





Design features

The outer pulleys with tires work like wheels, and rotation is transmitted through the belt drive to the inside pulleys. The pulleys are also cranks because the decorative legs of the robot are fixed on them.



roboriseit.com



关注公众号获取更多



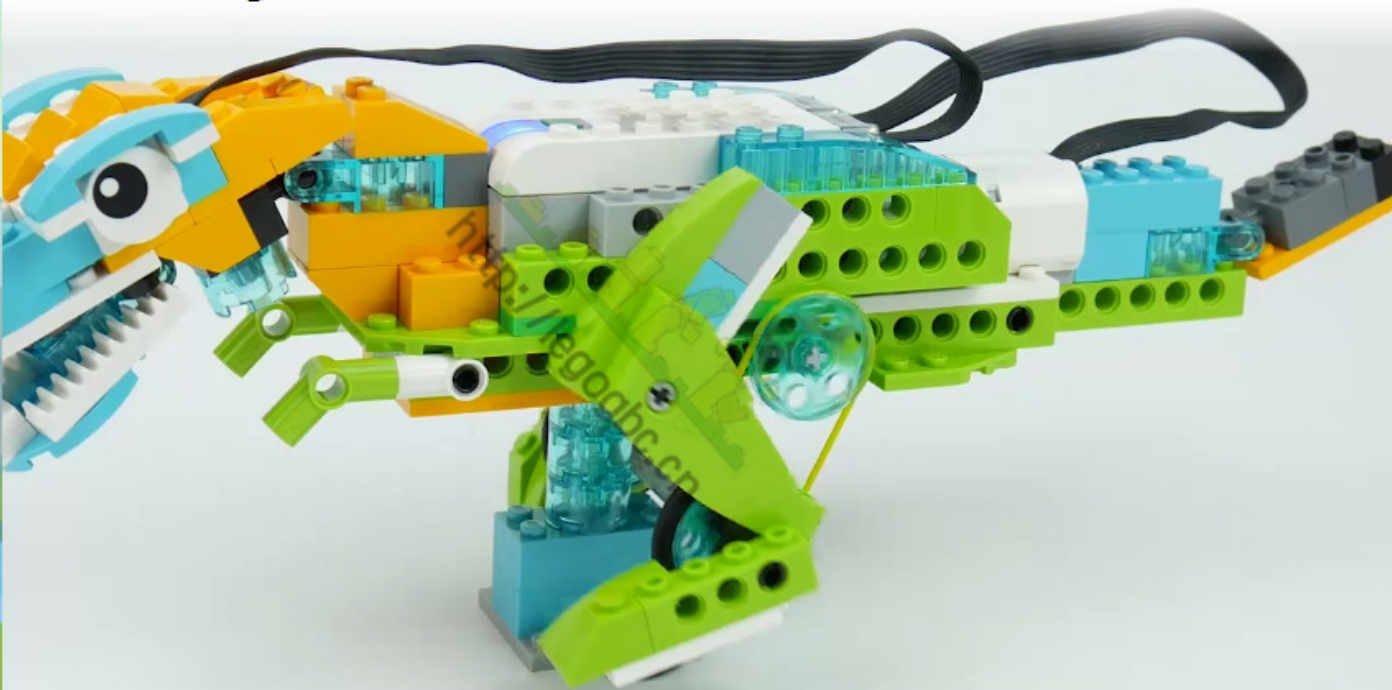
28





Design features

The outer pulleys with tires work like wheels, and rotation is transmitted through the belt drive to the inside pulleys. The pulleys are also cranks because the decorative legs of the robot are fixed on them.



roboriseit.com



关注公众号获取更多



4



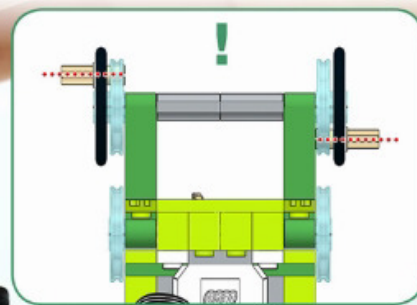
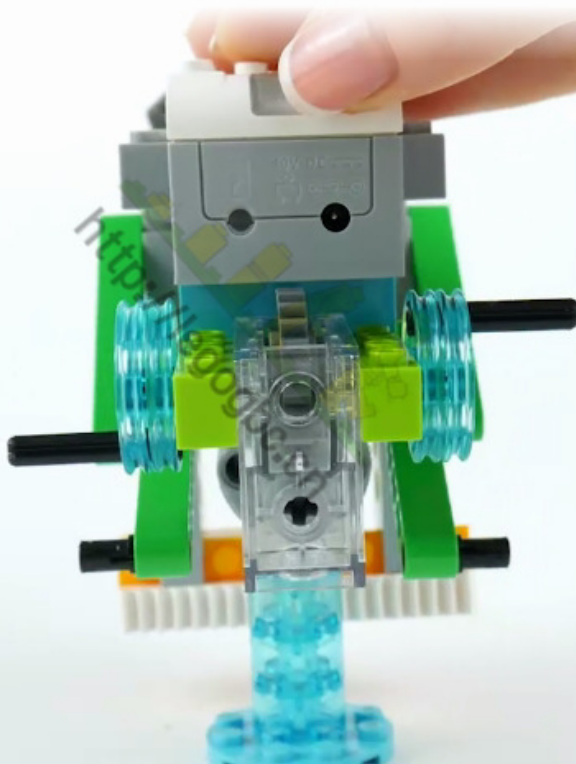
28





Pay attention!

When building the robot correctly fix the crank mechanism. If on the left it is at the top point, on the right it should be in the bottom, and vice versa:



robotiseit.com



关注公众号获取更多



29





Build the robot!



T-Rex

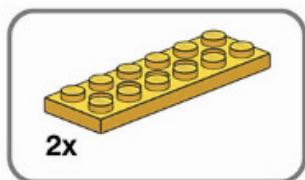


关注公众号获取更多

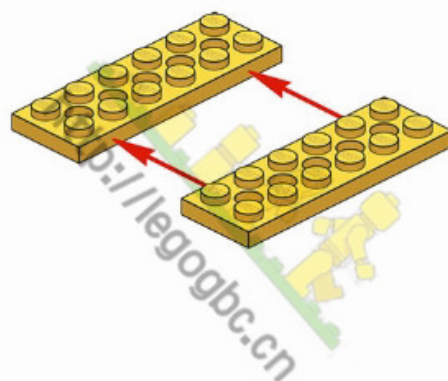




关注公众号获取更多

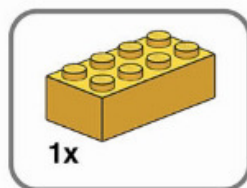


1

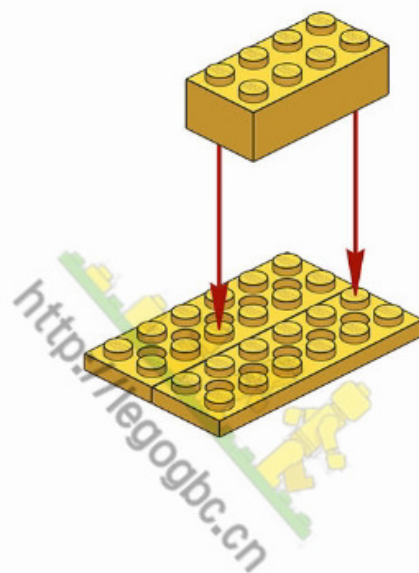




关注公众号获取更多

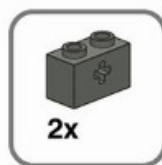


2

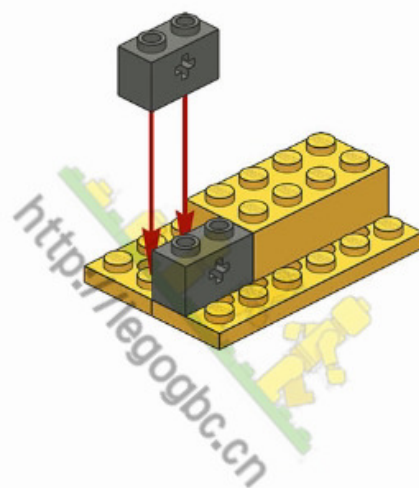




关注公众号获取更多

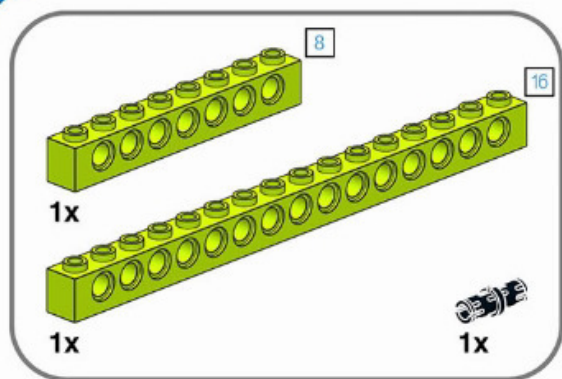


3

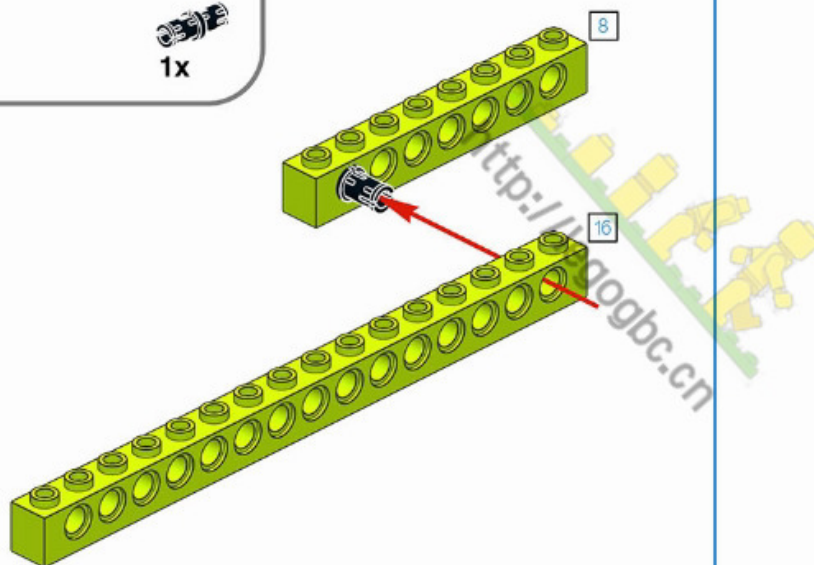




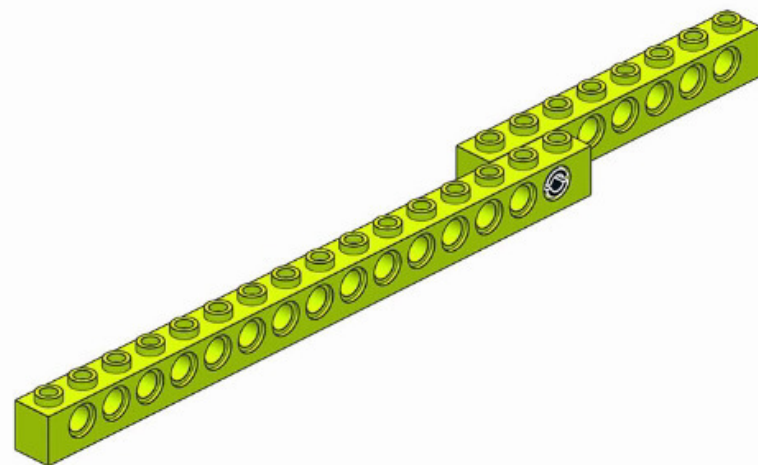
关注公众号获取更多



1



2



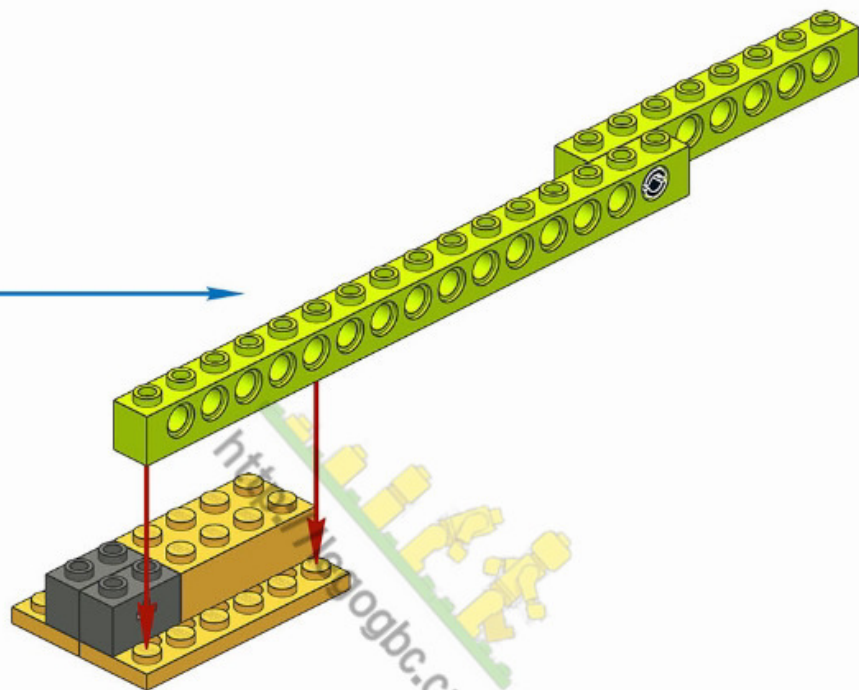
4/70

4

34



5



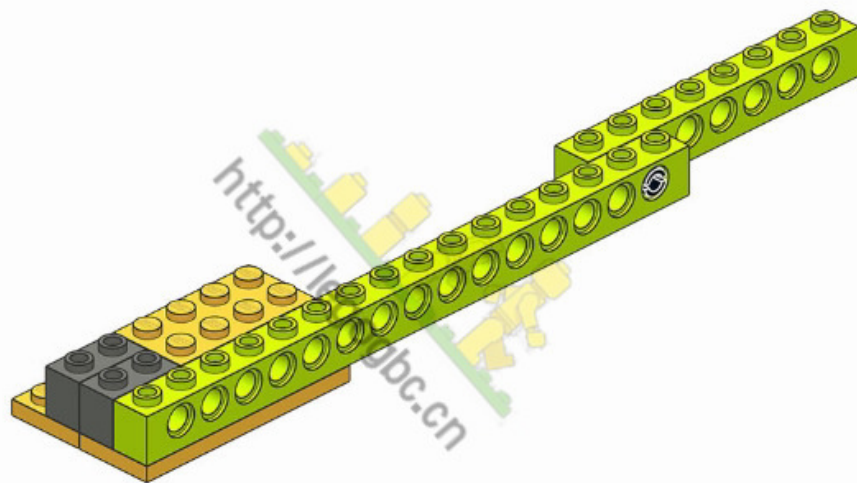
关注公众号获取更多



6

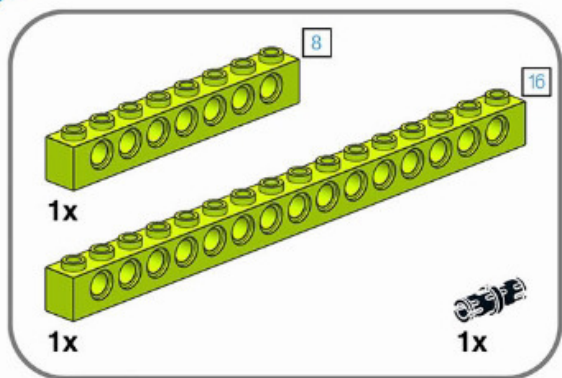


关注公众号获取更多

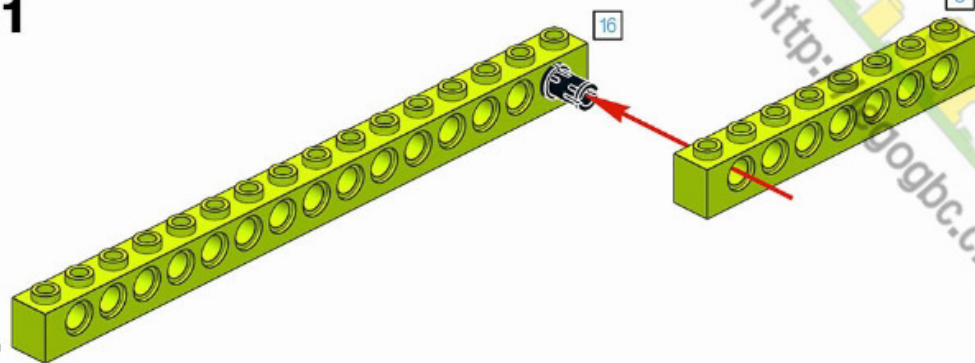




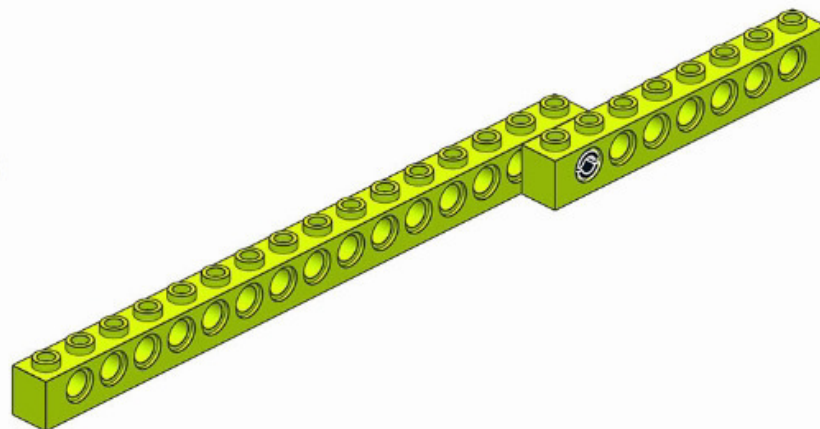
关注公众号获取更多



1



2



7/70

4

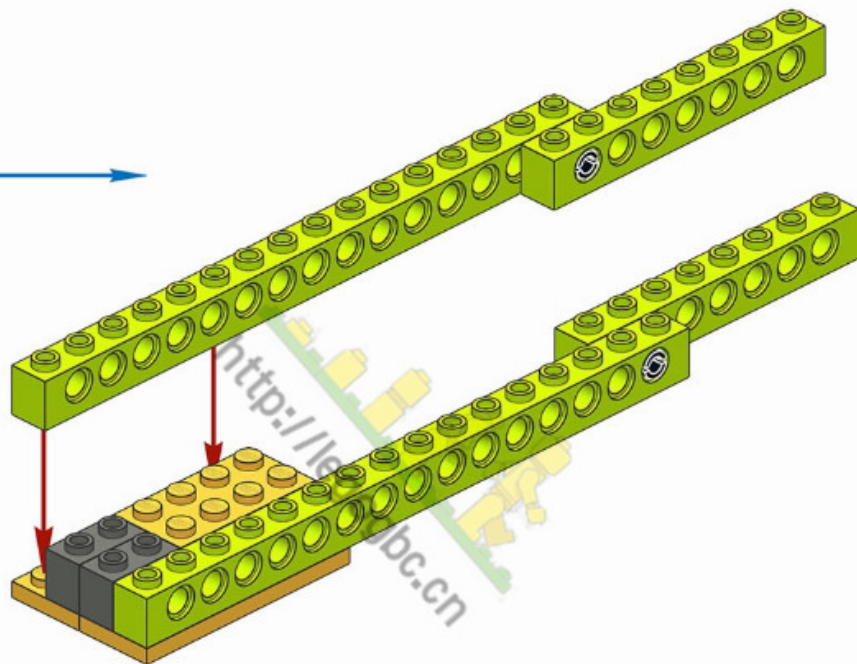
37



8



关注公众号获取更多



8/70

4

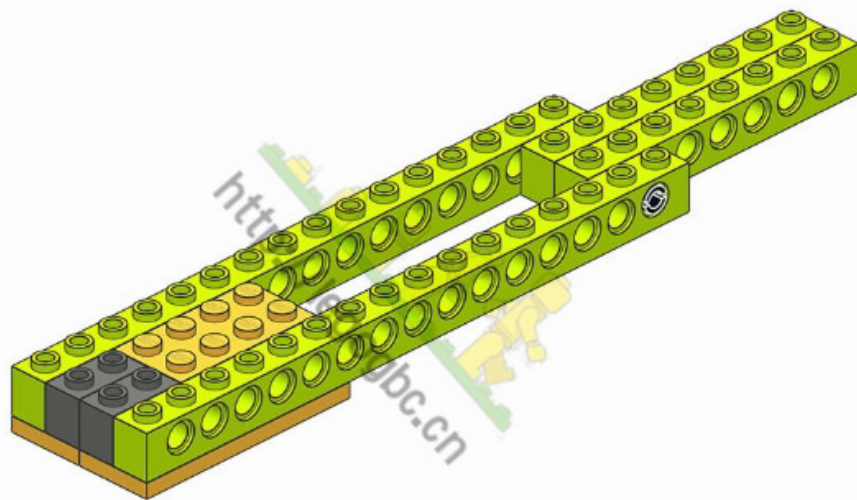
38





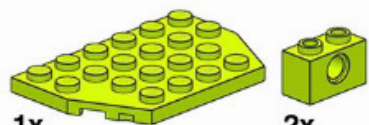
关注公众号获取更多

9





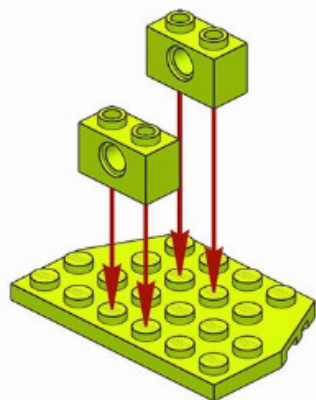
关注公众号获取更多



1x

2x

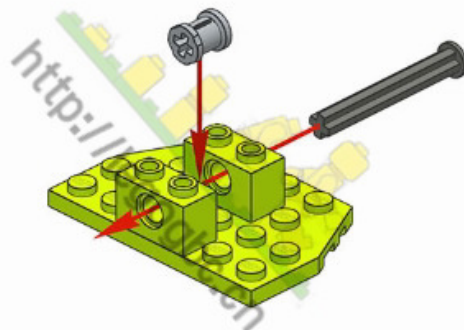
1



1x

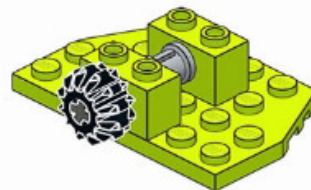
1x

2



1x

3



10/70

4

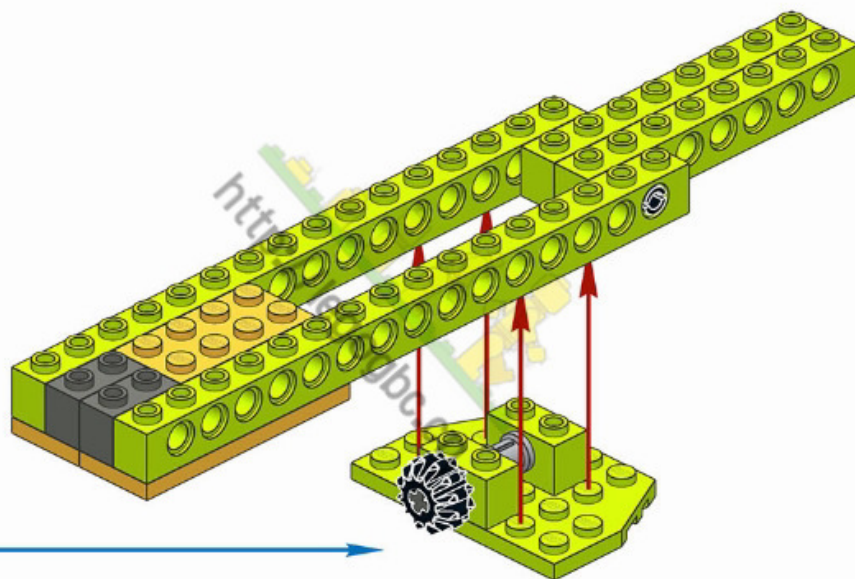
40



11



关注公众号获取更多



11/70

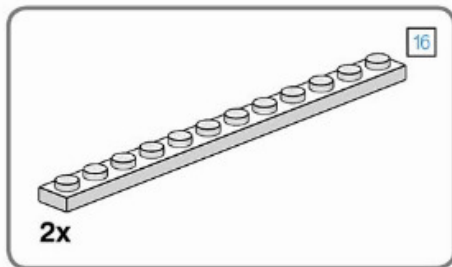
4

41

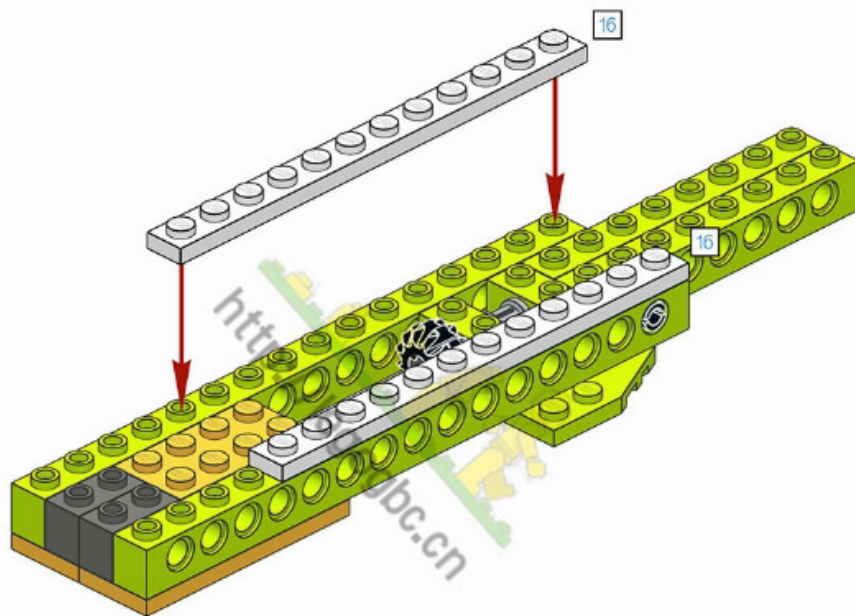




关注公众号获取更多

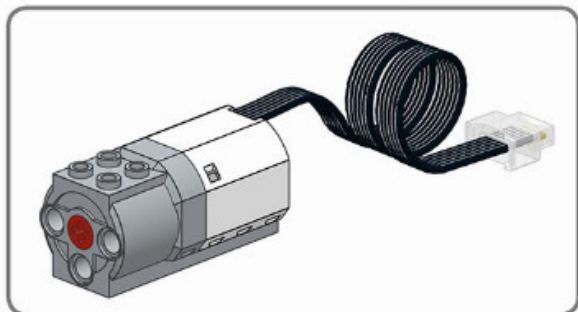


12

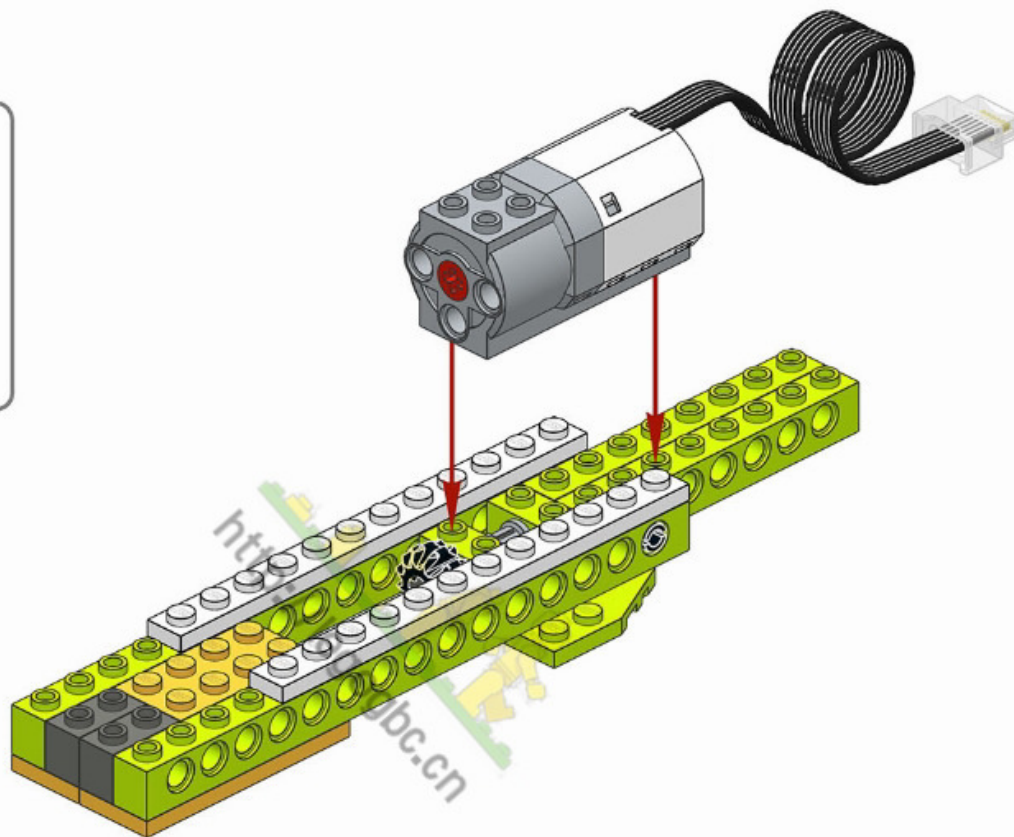




关注公众号获取更多



13



13/70

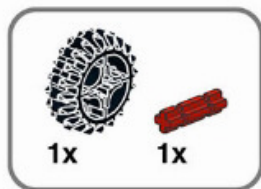
4

43

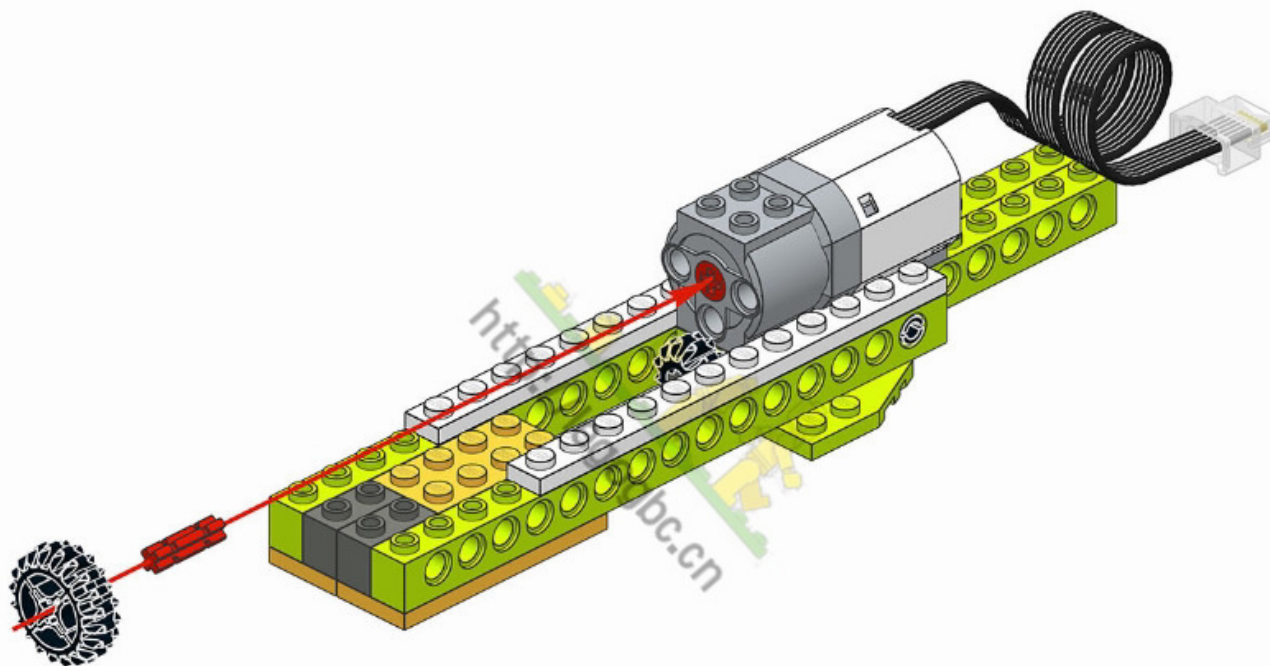




关注公众号获取更多



14



14/70

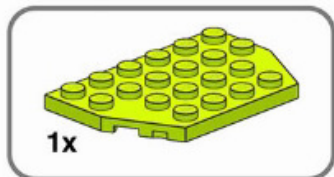
4

44

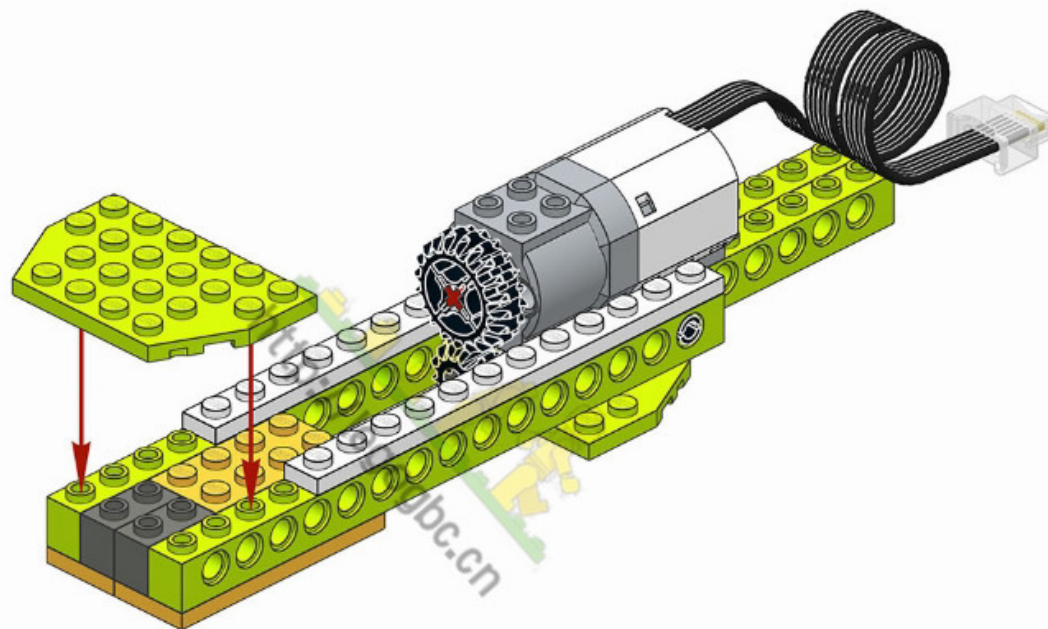




关注公众号获取更多



15



15/70

4

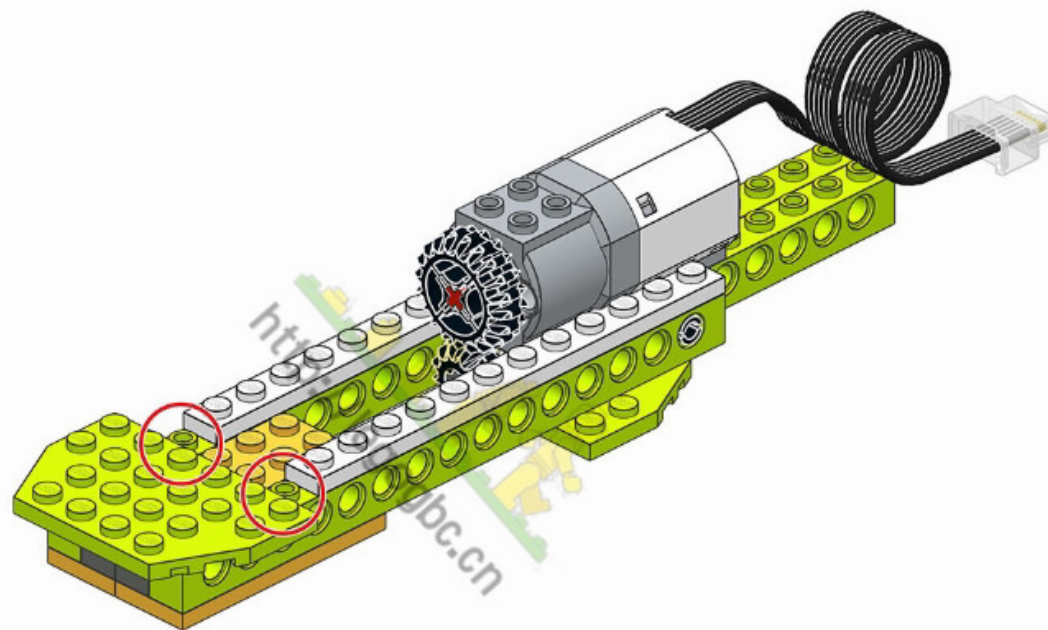
45



16



关注公众号获取更多



16/70

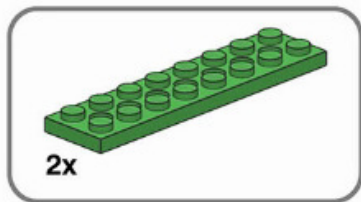
4

46

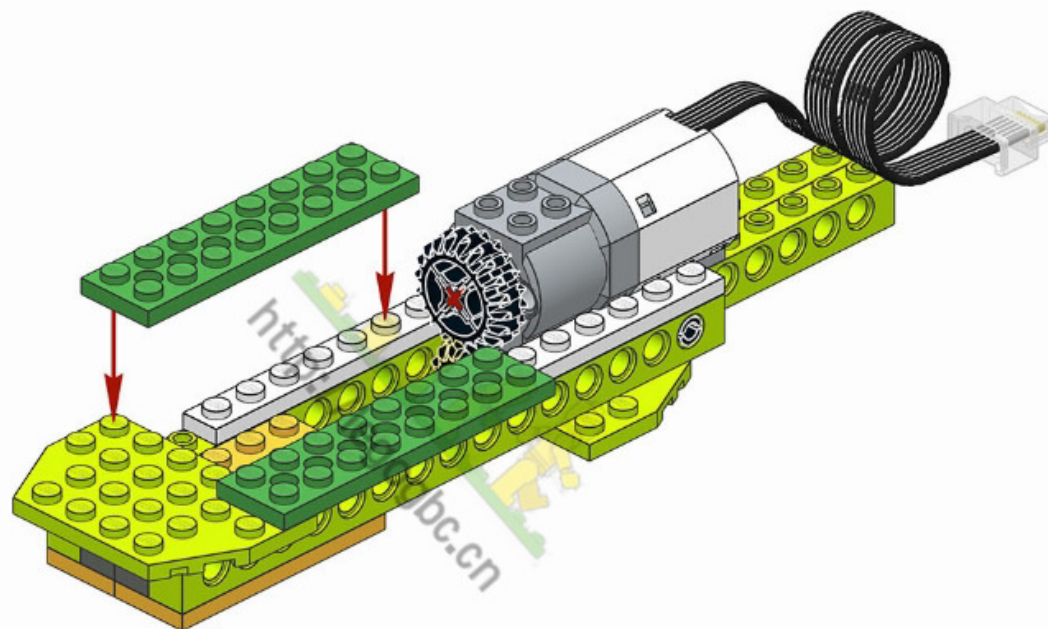




关注公众号获取更多



17



17/70

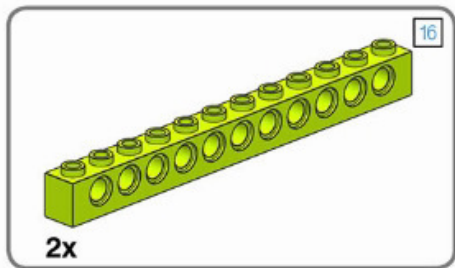
4

47

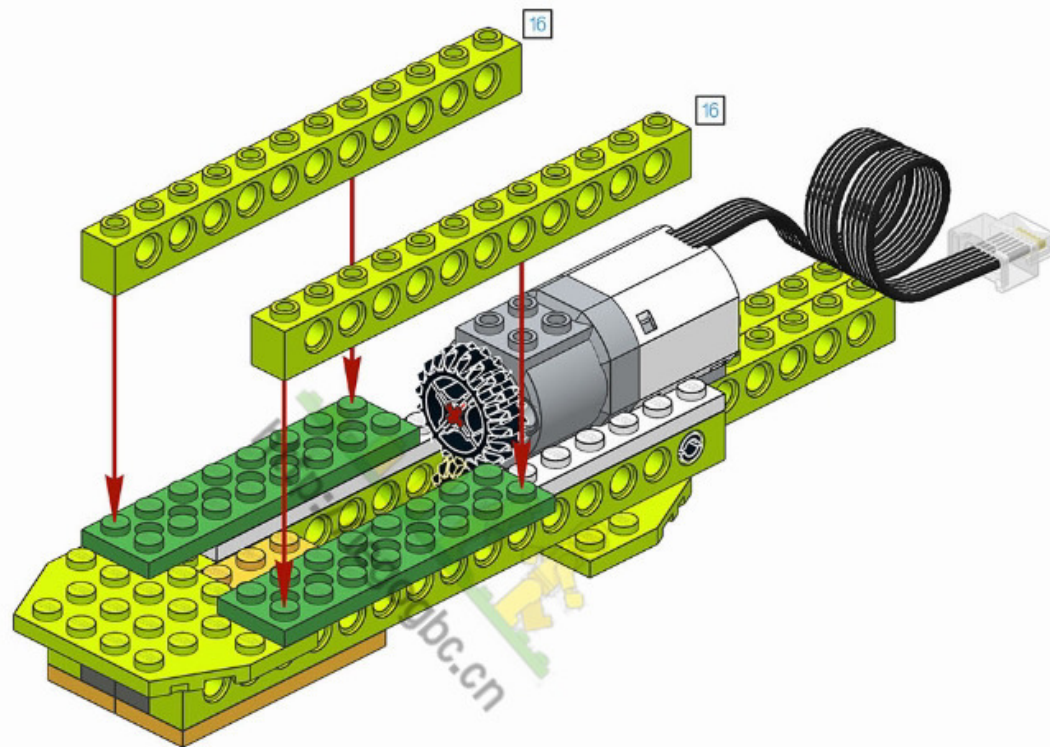




关注公众号获取更多



18



18/70

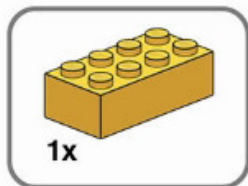
4

48

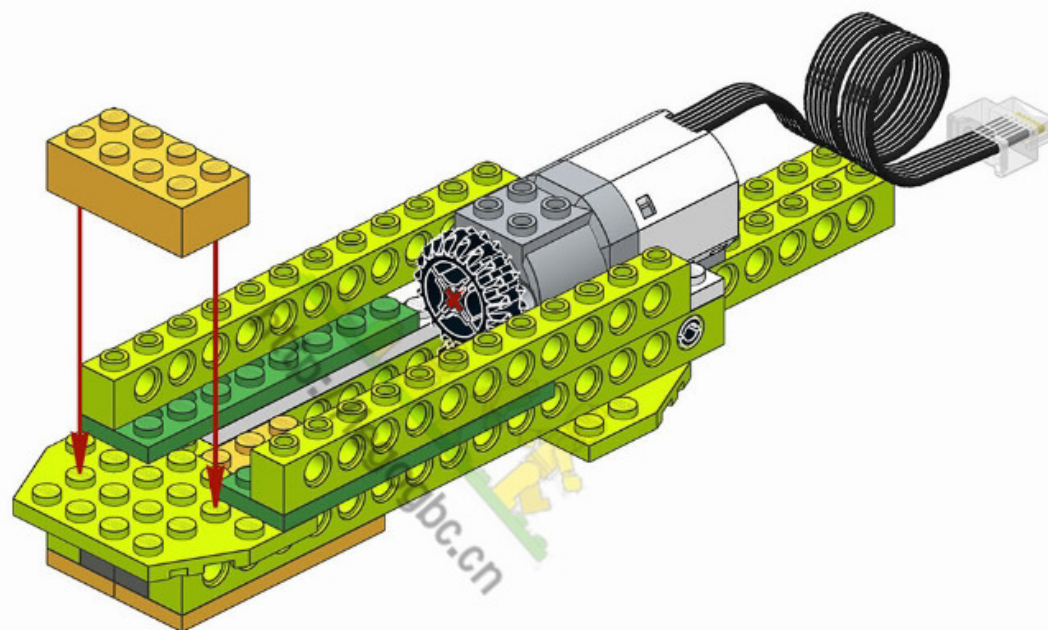




关注公众号获取更多



19

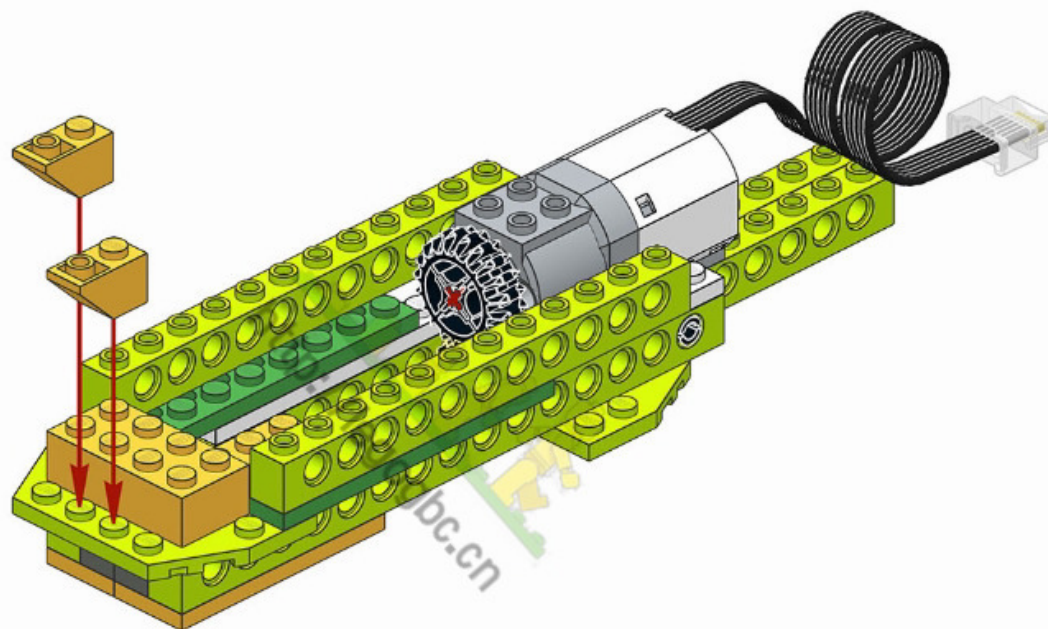




关注公众号获取更多

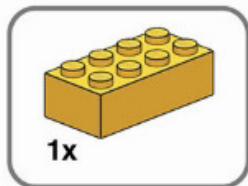


20

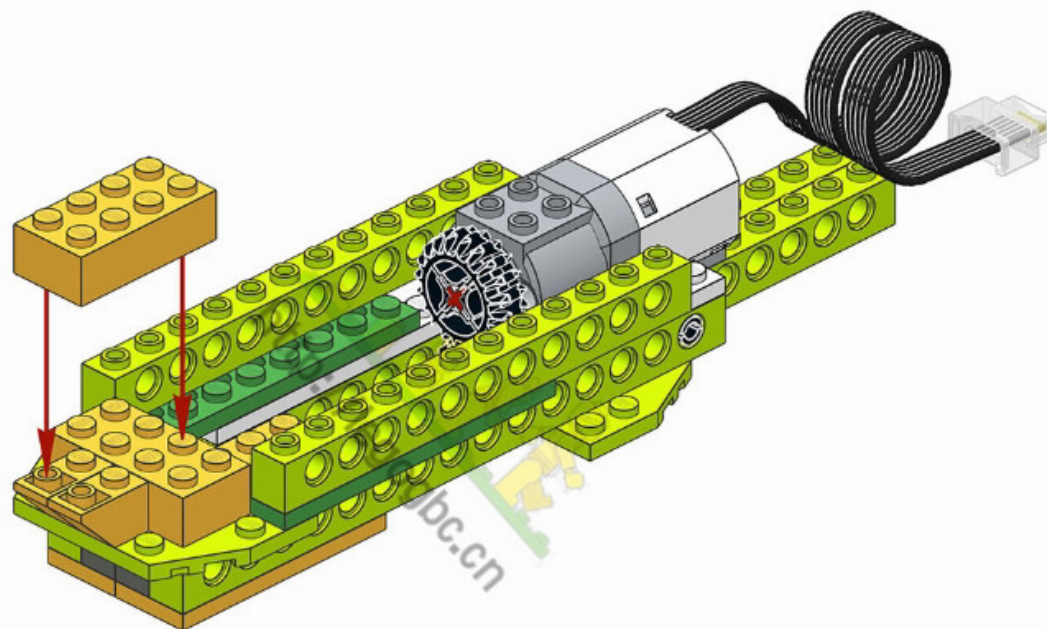




关注公众号获取更多



21



21/70

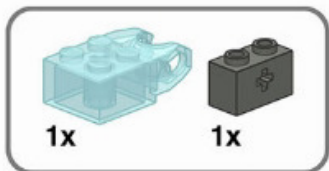
4

51

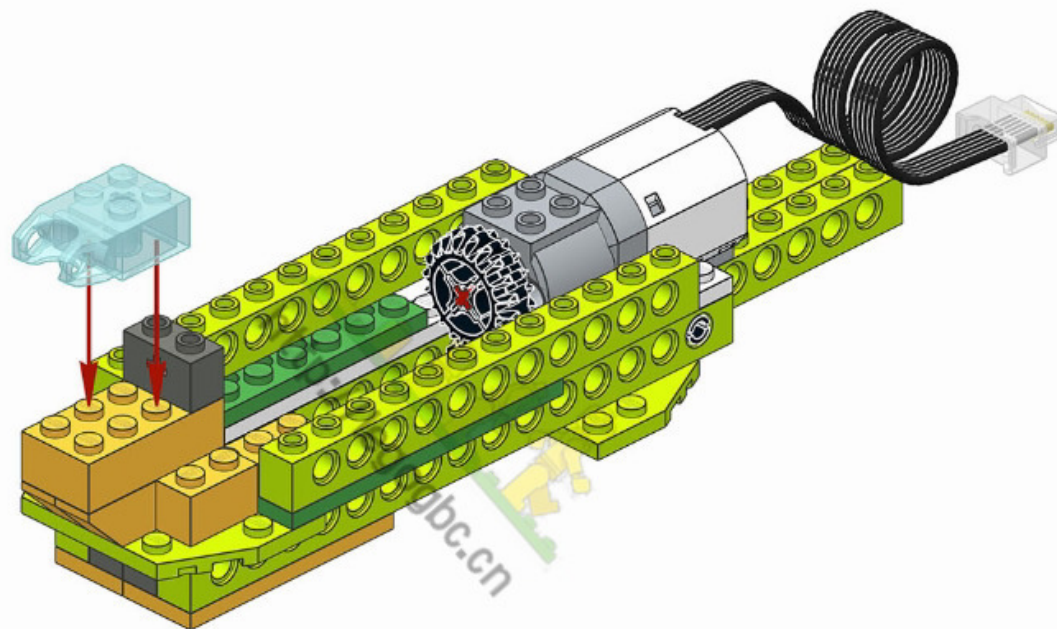




关注公众号获取更多



22



22/70

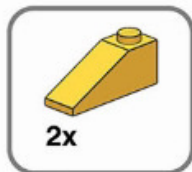
4

52

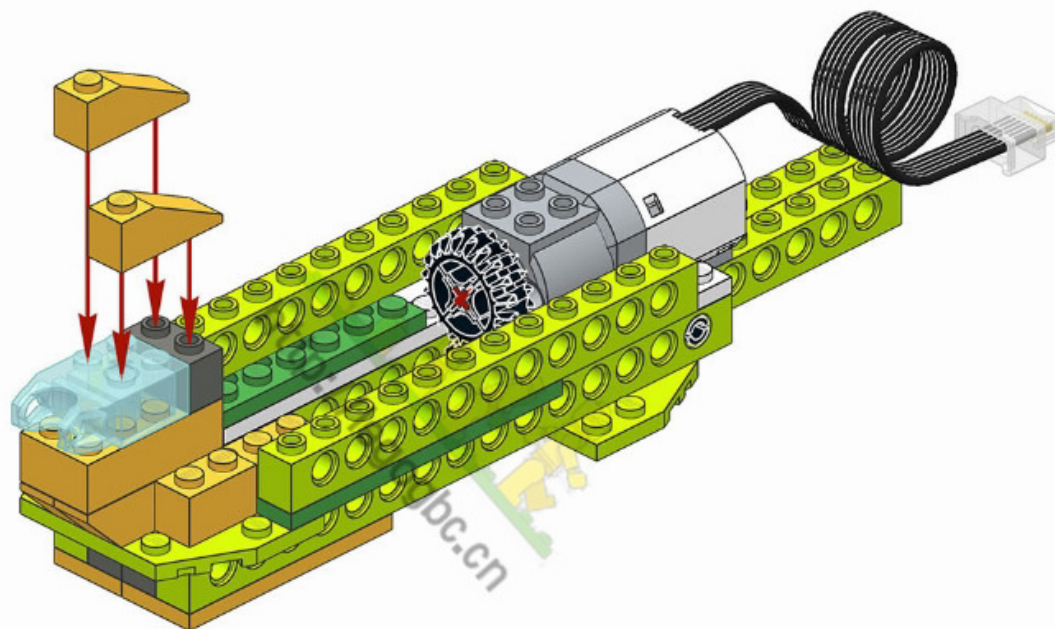




关注公众号获取更多



23



23/70

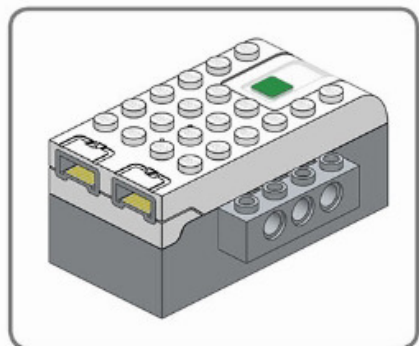
4

53

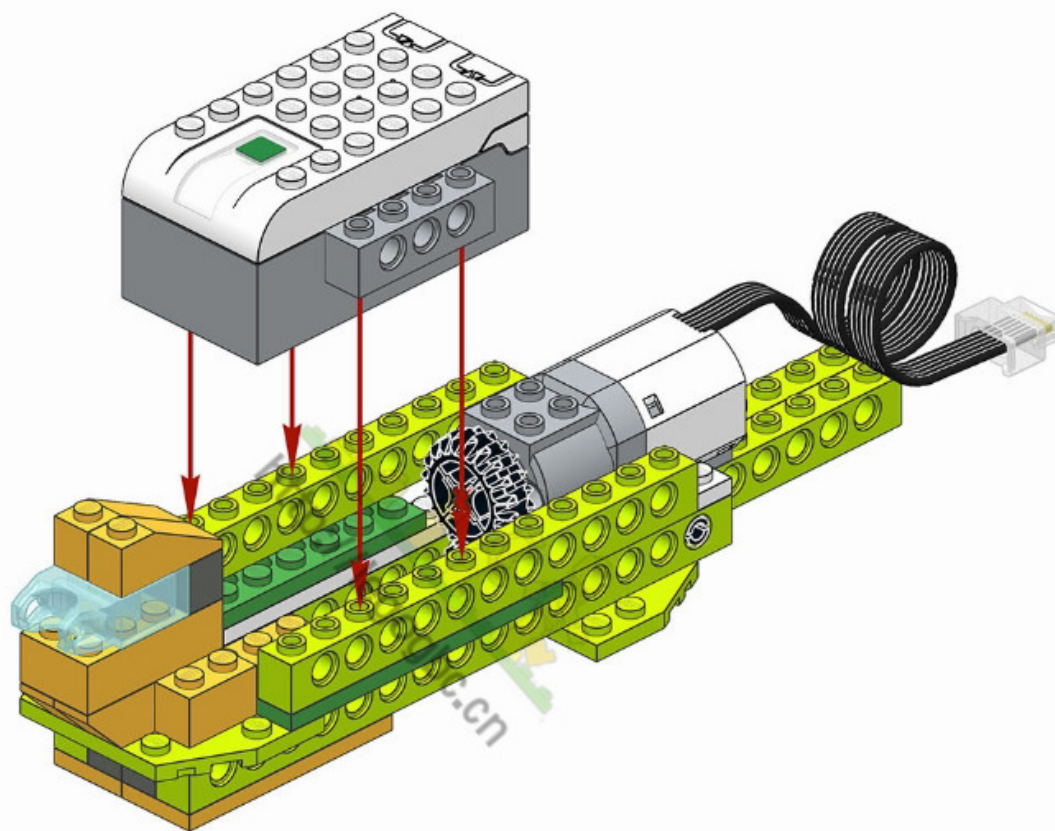




关注公众号获取更多



24



24/70

4

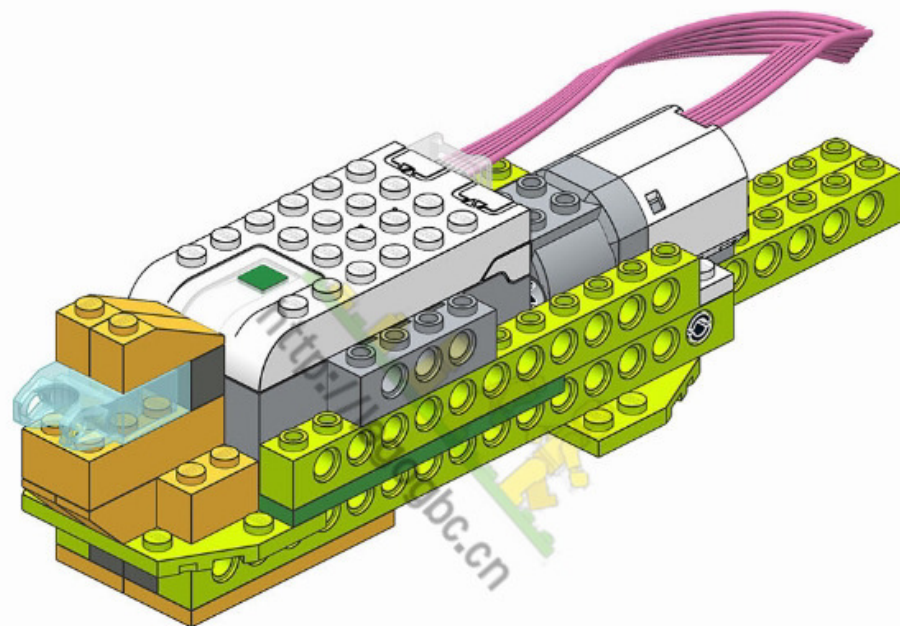
54



25



关注公众号获取更多



25/70

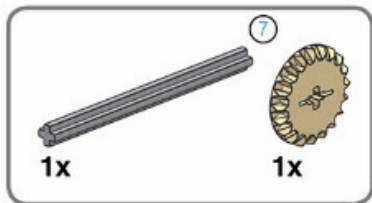
4

55

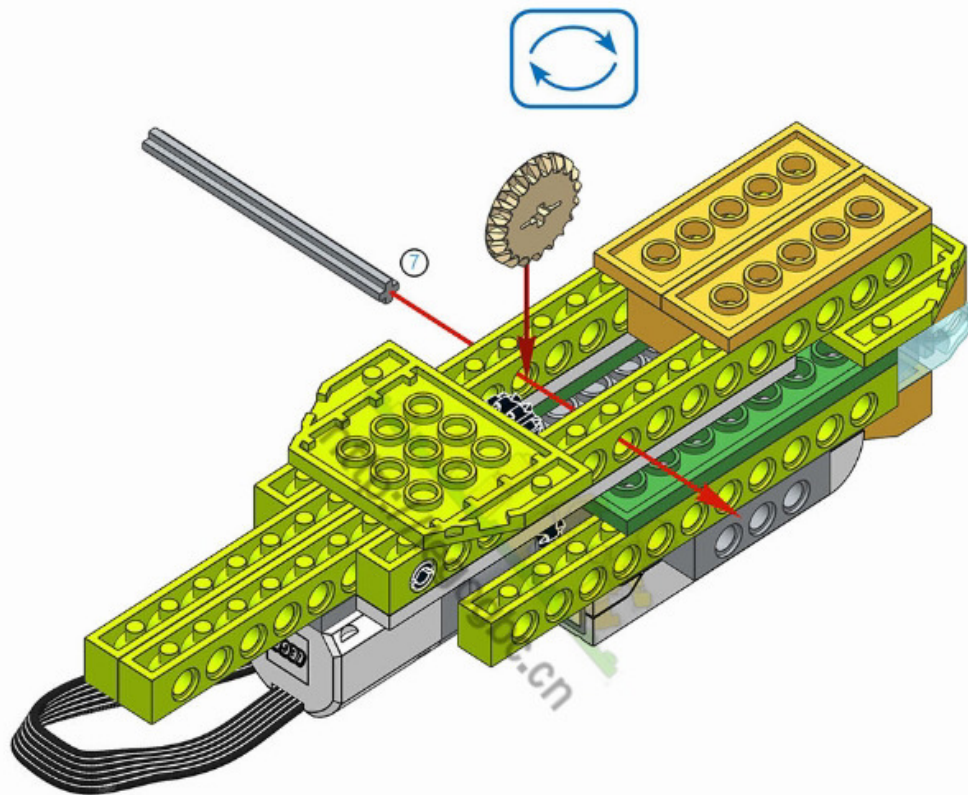




关注公众号获取更多



26



26/70

4

56



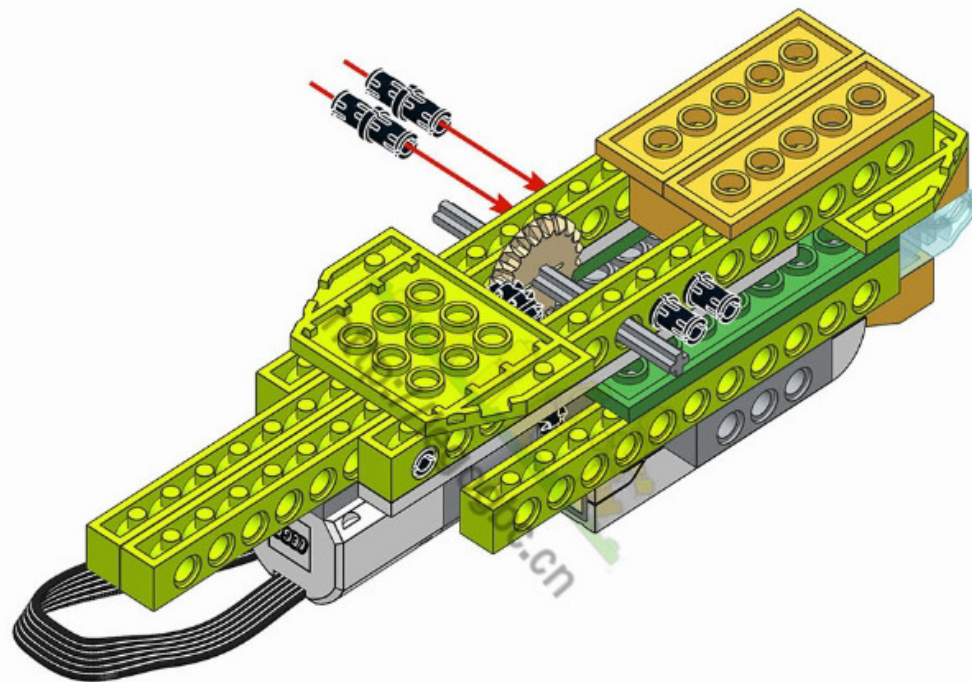


关注公众号获取更多



4x

27



27/70

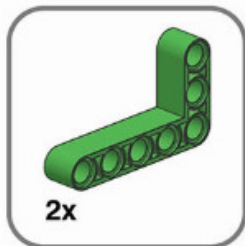
4

57

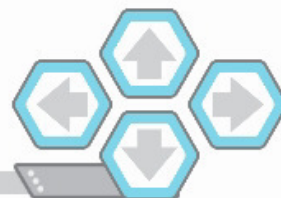
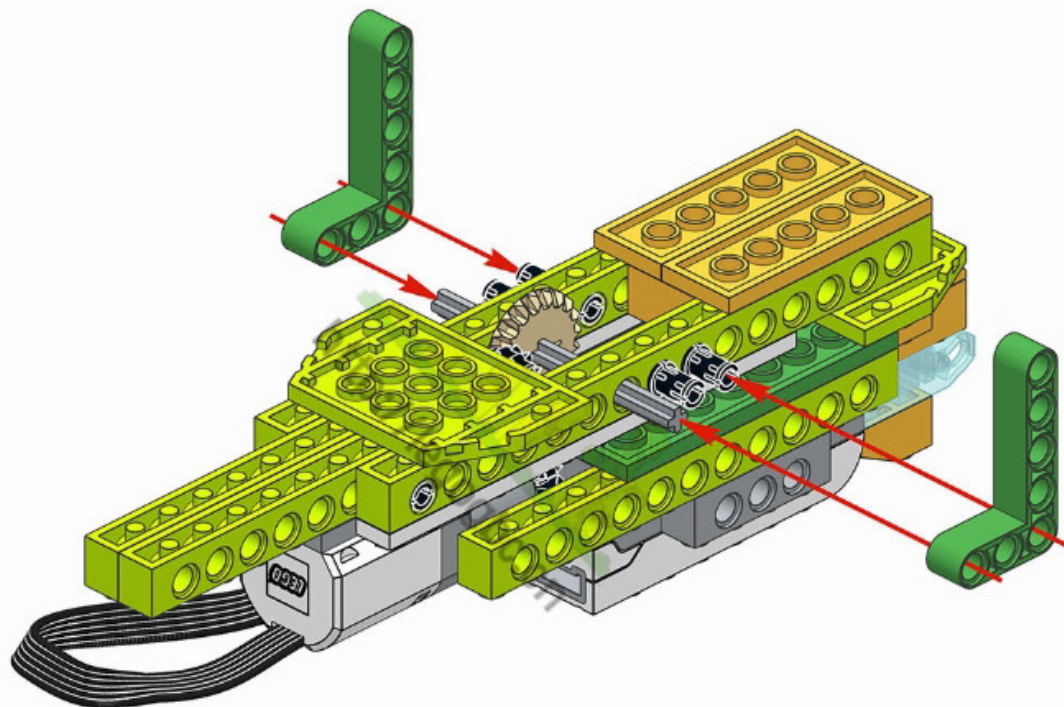




关注公众号获取更多



28



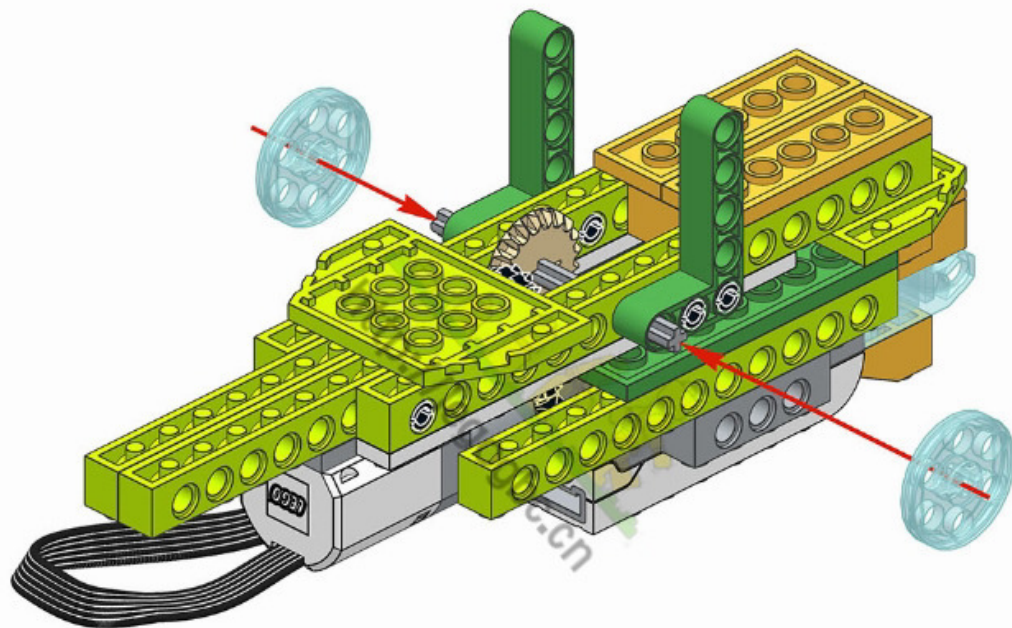


关注公众号获取更多



2x

29



29/70

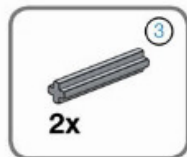
4

59

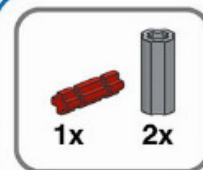
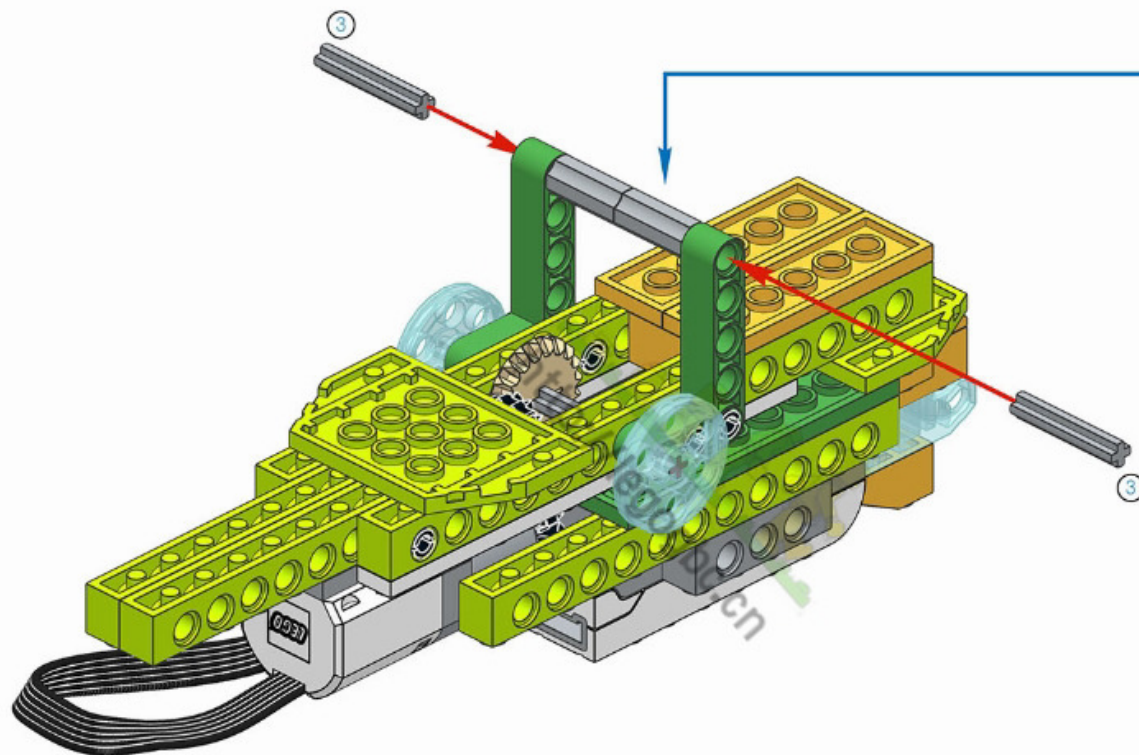




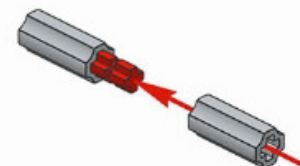
关注公众号获取更多



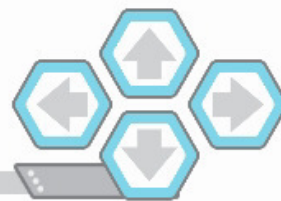
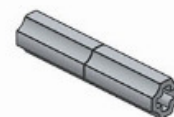
30



1

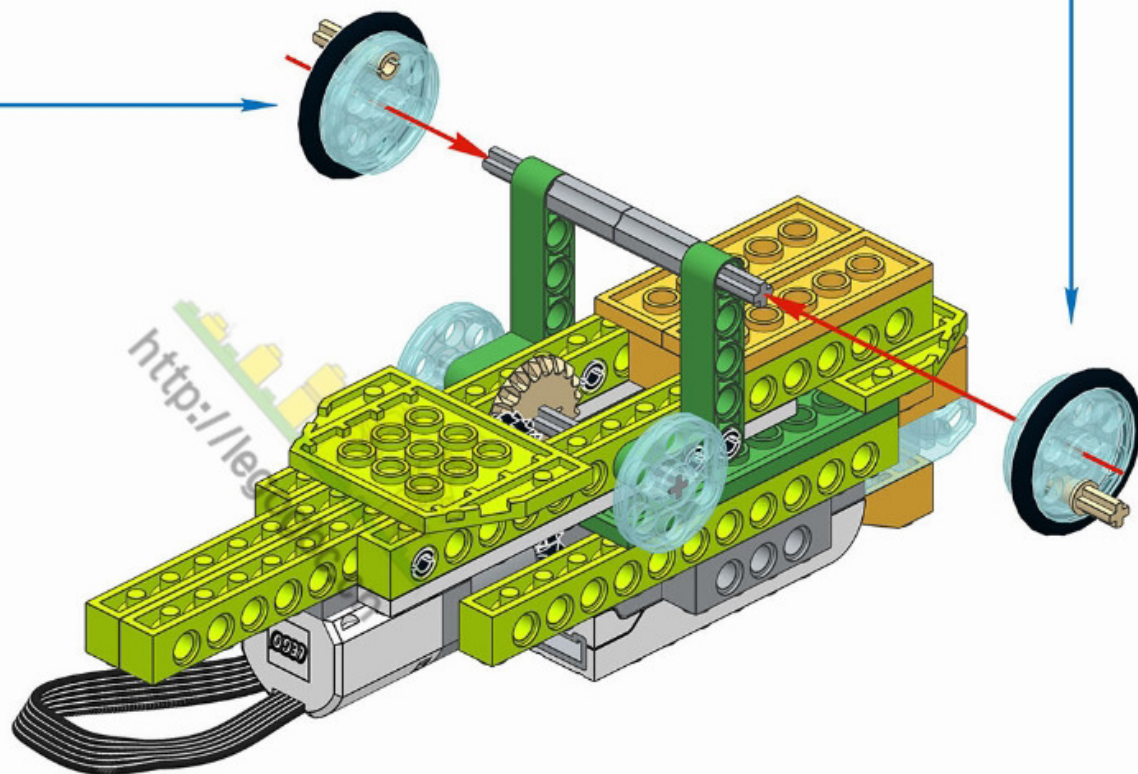
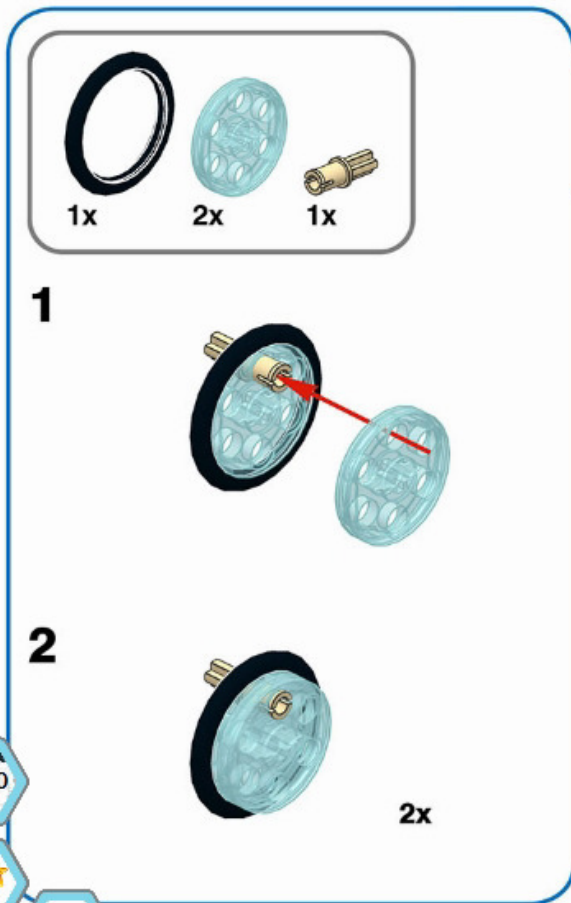


2





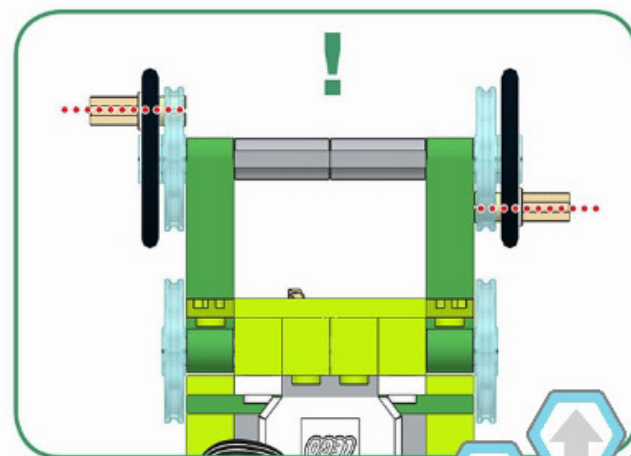
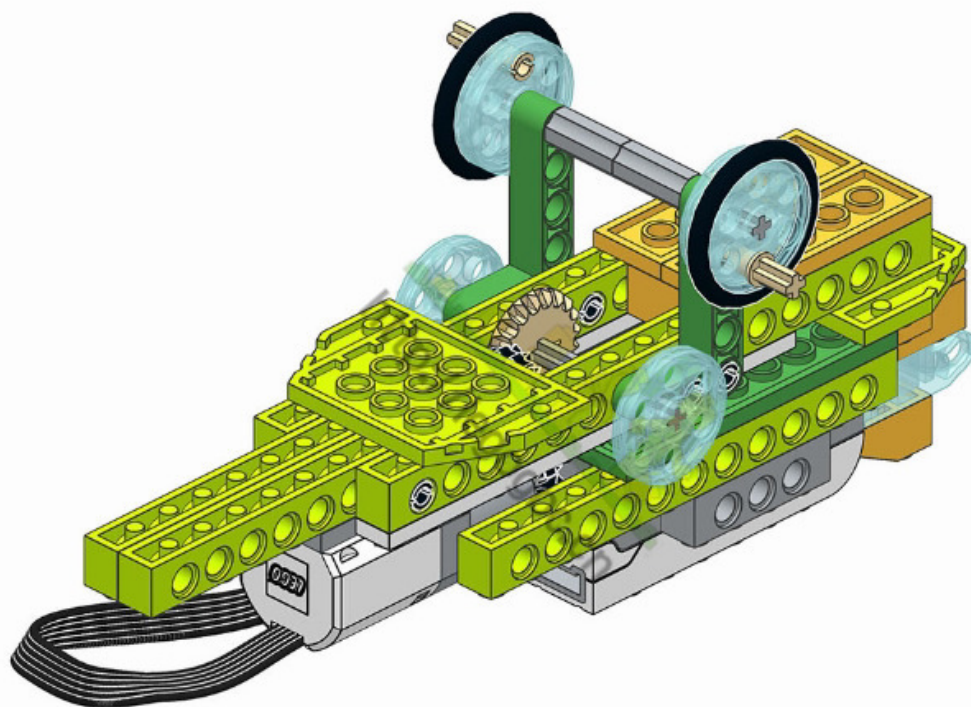
关注公众号获取更多



32



关注公众号获取更多



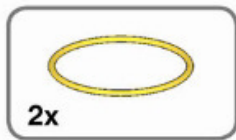
32/70

4

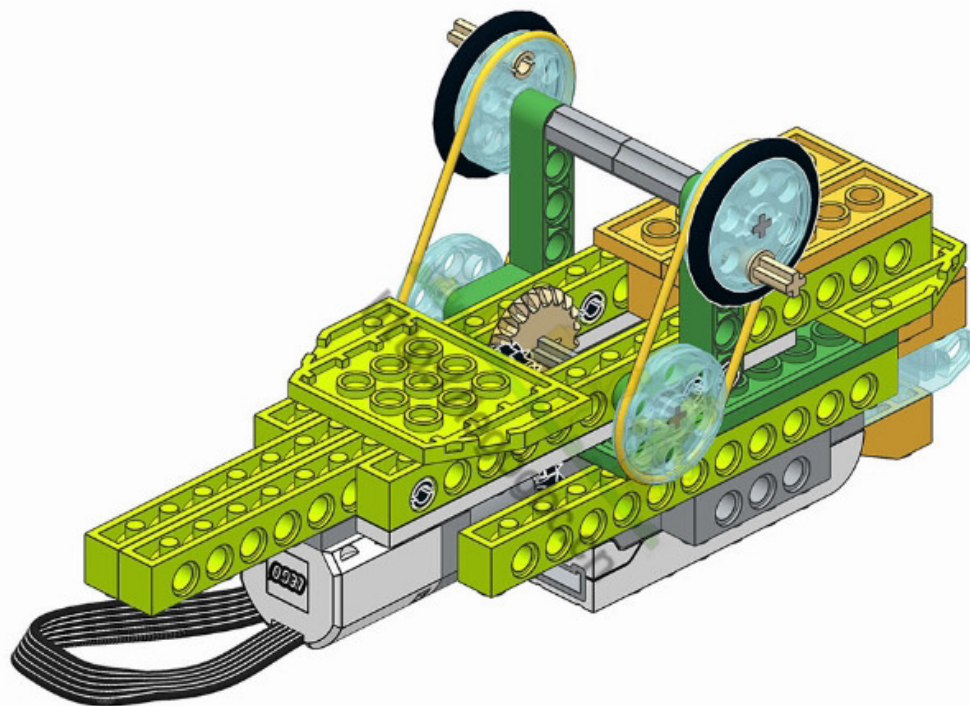
62



关注公众号获取更多



33



33/70

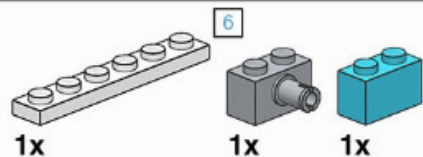
4

63

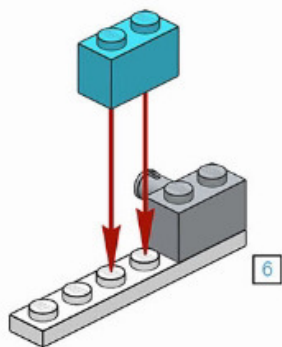




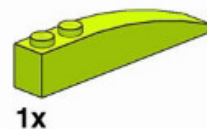
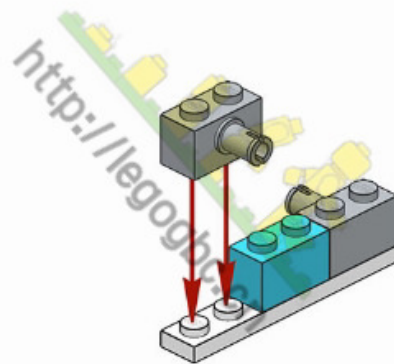
关注公众号获取更多



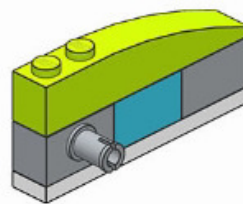
1



2



3



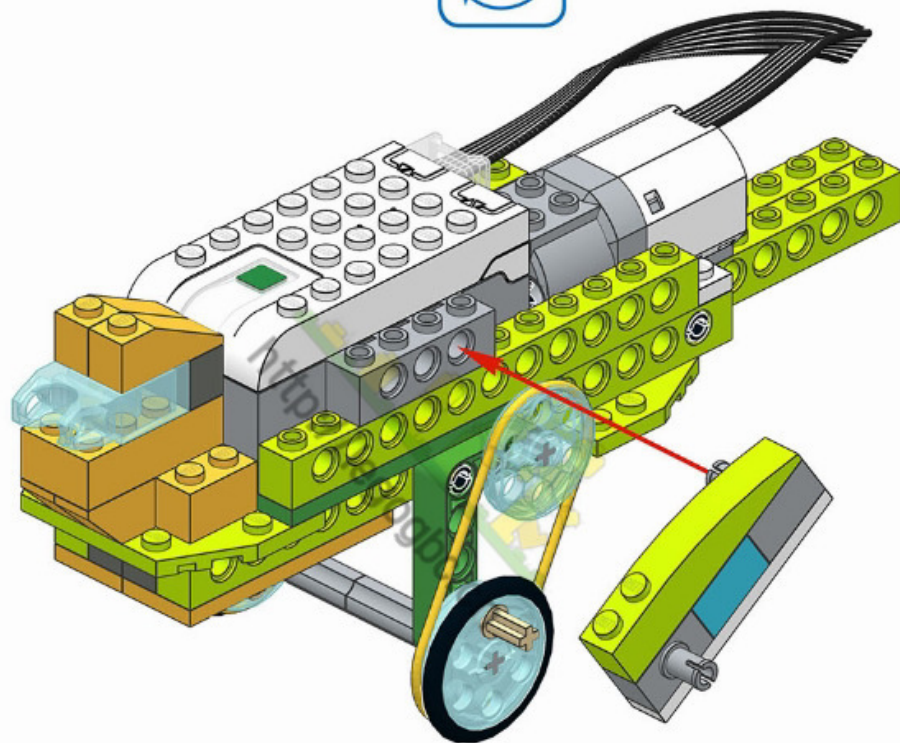
34/70

4

64



35



关注公众号获取更多

35/70

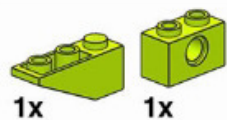
4

65





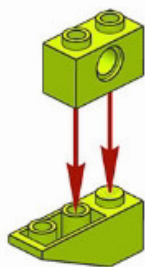
关注公众号获取更多



1x

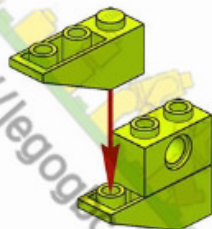
1x

1

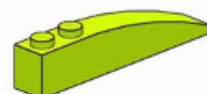


1x

2

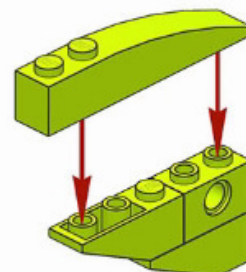


<http://legooc.cn>



1x

3



36/70

4

66



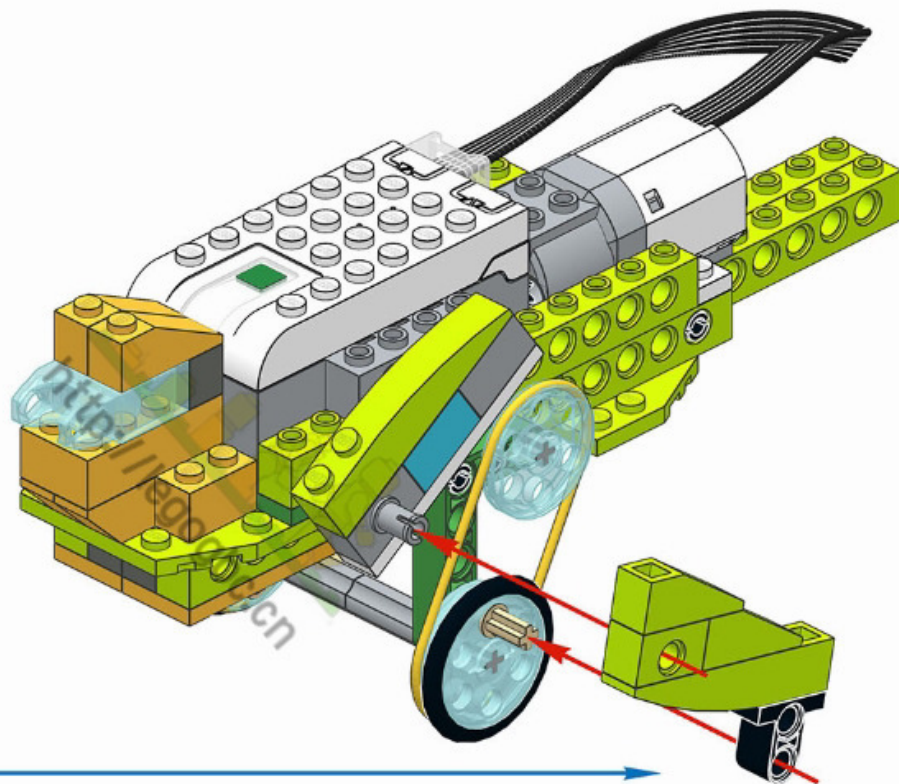
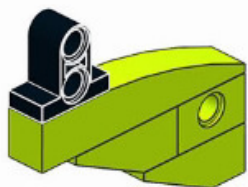


关注公众号获取更多



1x

4



37/70

4

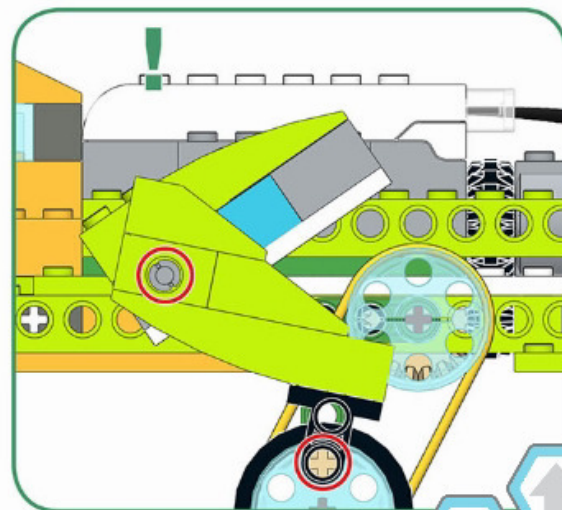
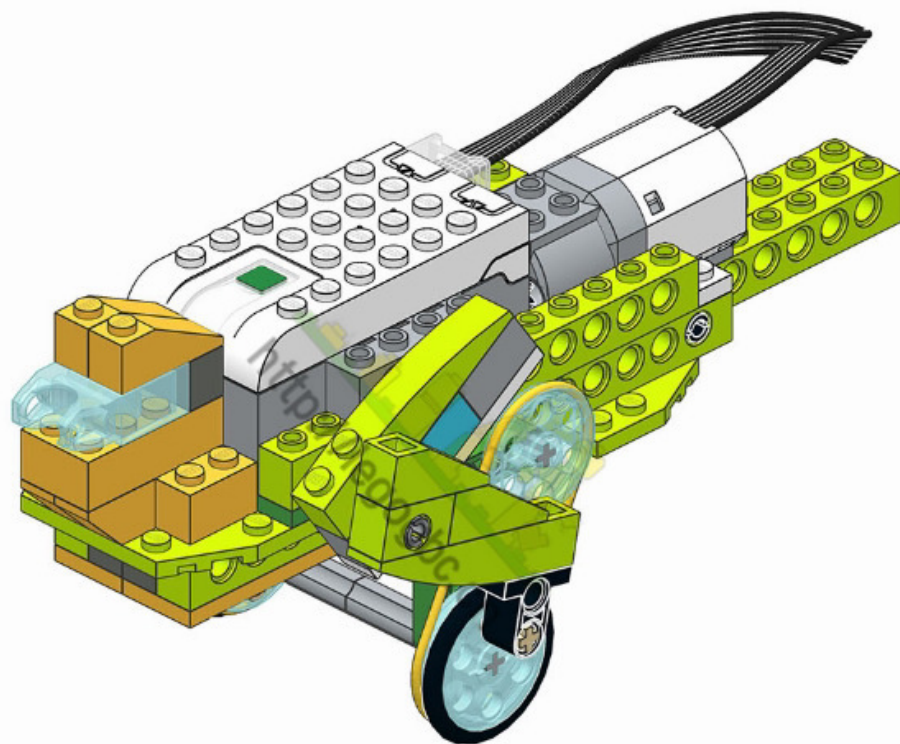
67



38



关注公众号获取更多



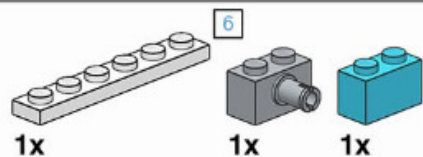
38/70

4

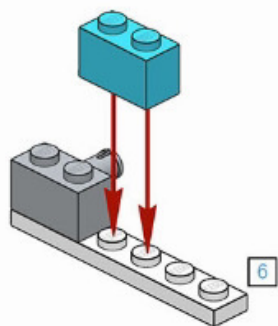
68



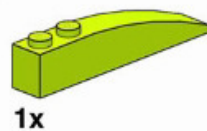
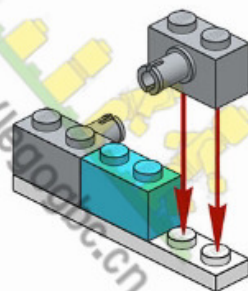
关注公众号获取更多



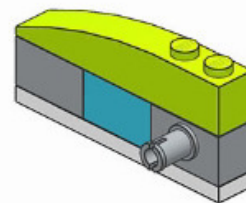
1



2



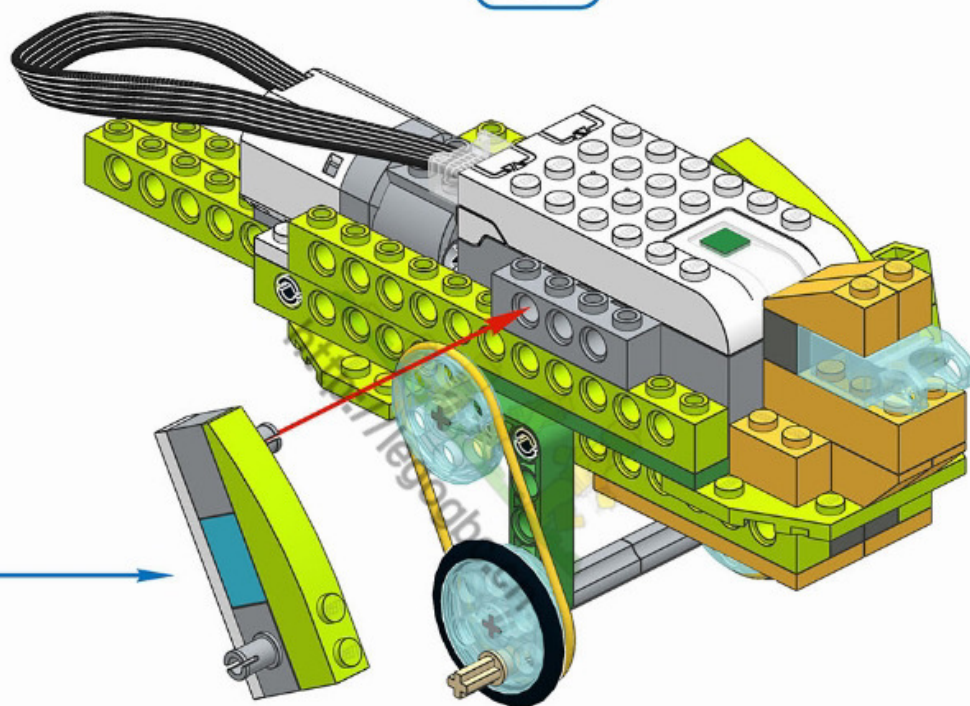
3



40

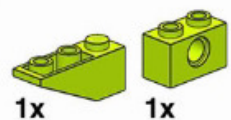


关注公众号获取更多

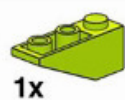
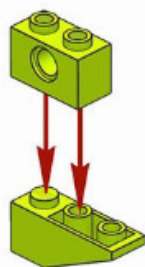




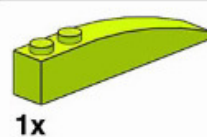
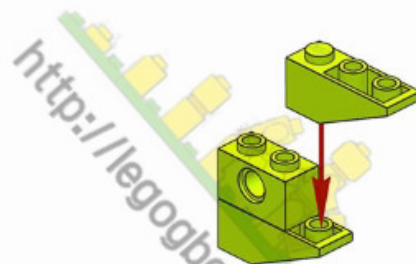
关注公众号获取更多



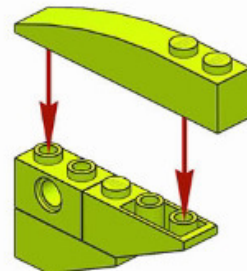
1



2



3



41/70

4

71



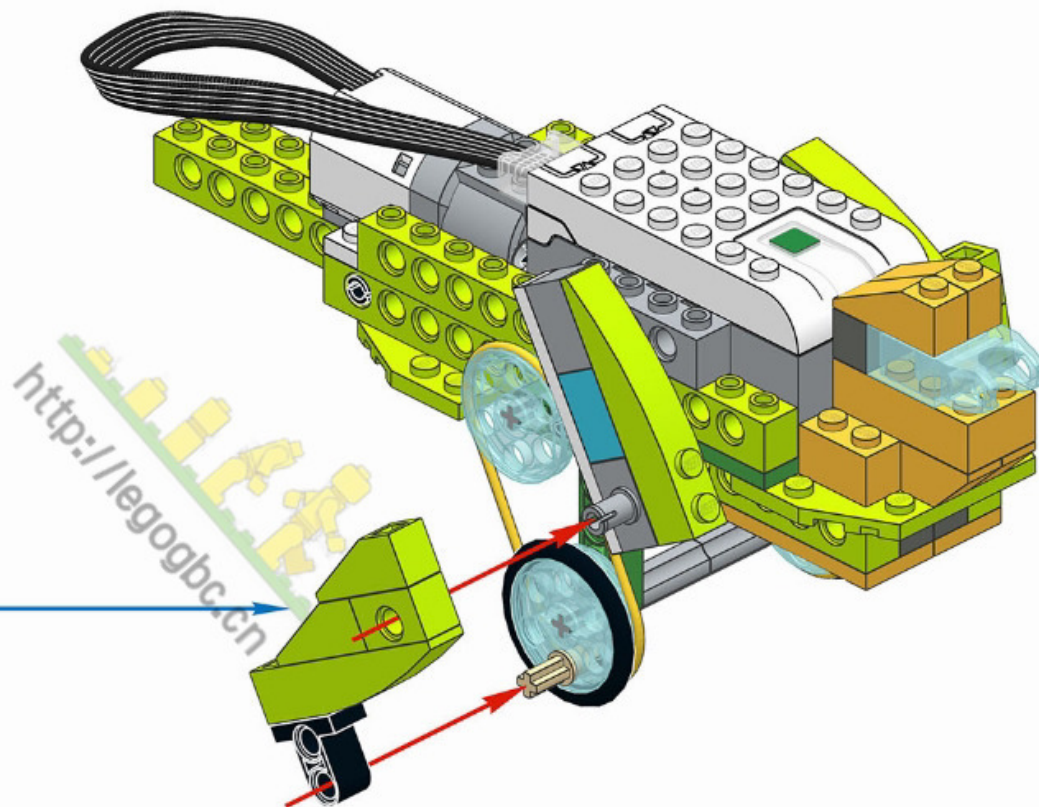
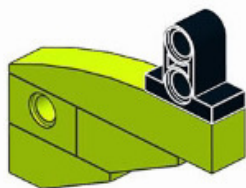


关注公众号获取更多



1x

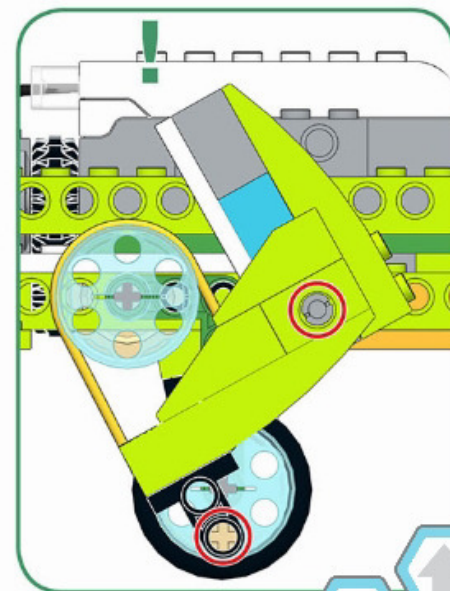
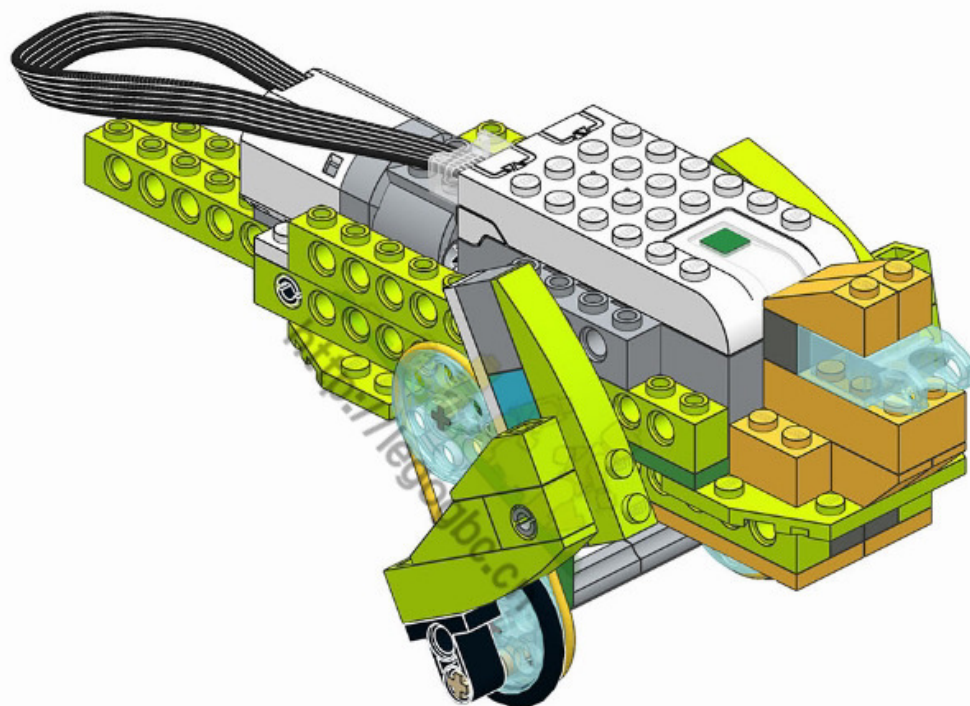
4



43



关注公众号获取更多



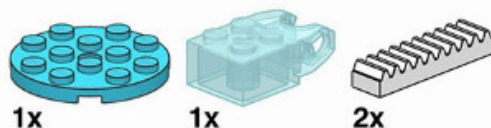
43/70

4

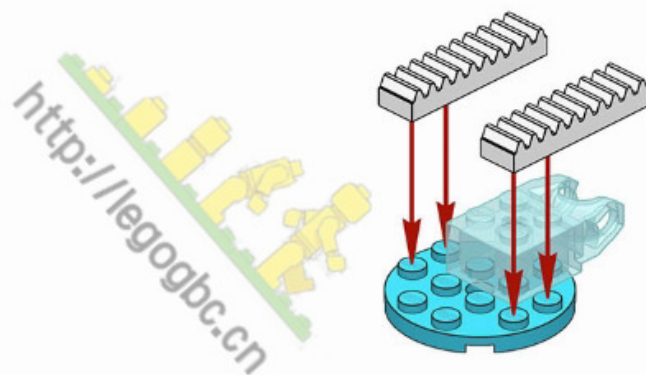
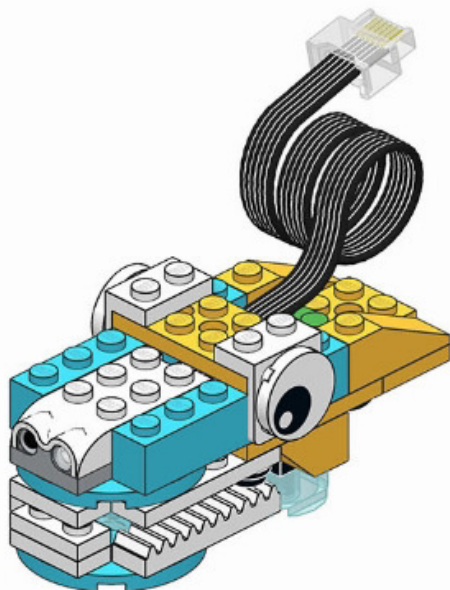
73



关注公众号获取更多



44



44/70

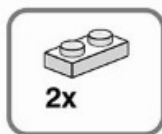
4

74

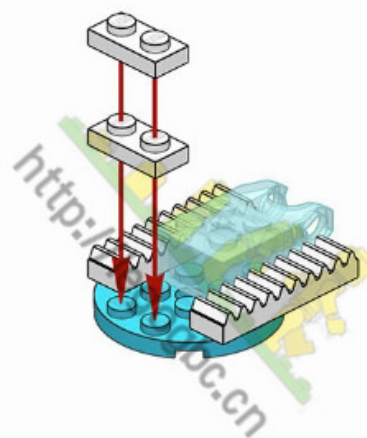




关注公众号获取更多

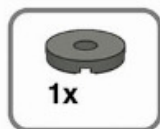


45

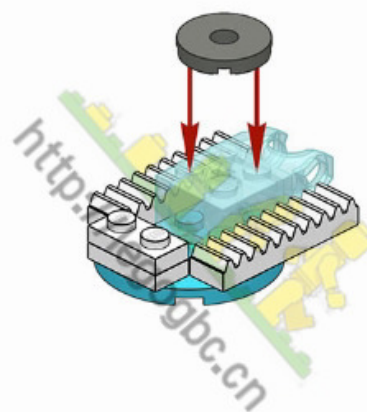




关注公众号获取更多

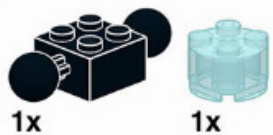


46

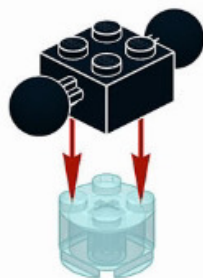




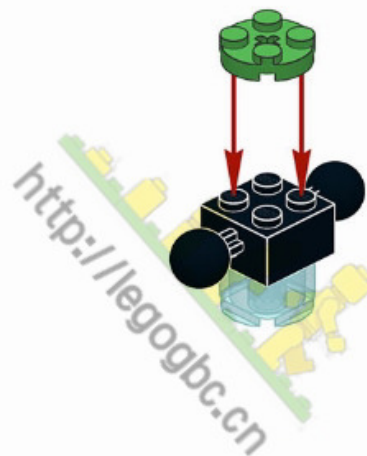
关注公众号获取更多



1



2



3



47/70

4

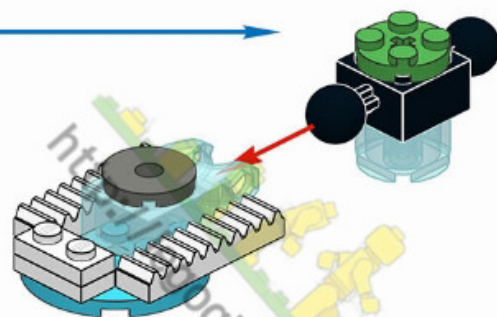
77



48



关注公众号获取更多



48/70

4

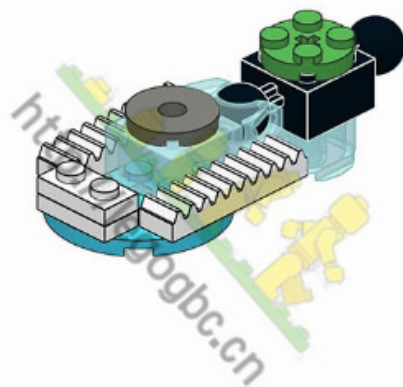
78



49



关注公众号获取更多



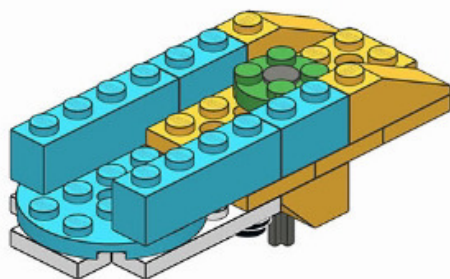


关注公众号获取更多

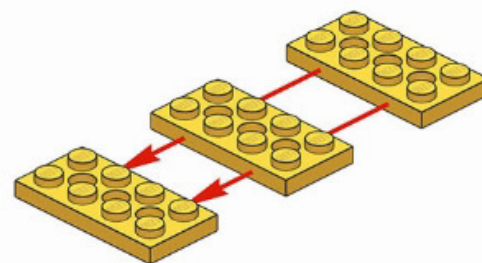


3x

50



<http://legogbc.cn>



50/70

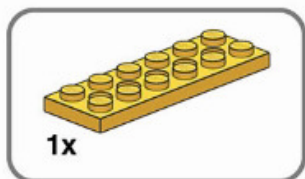
4

80

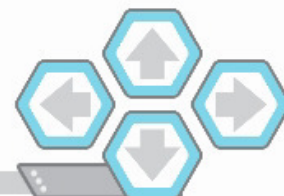
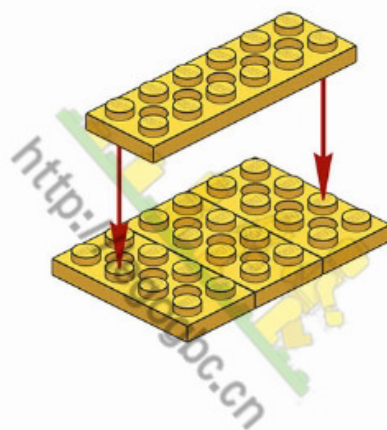




关注公众号获取更多



51

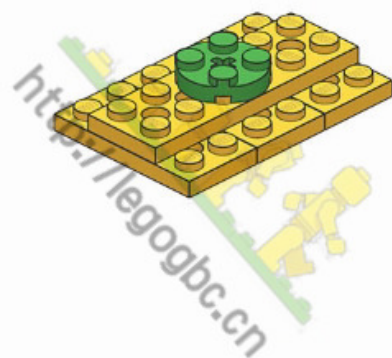




关注公众号获取更多

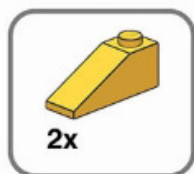


52



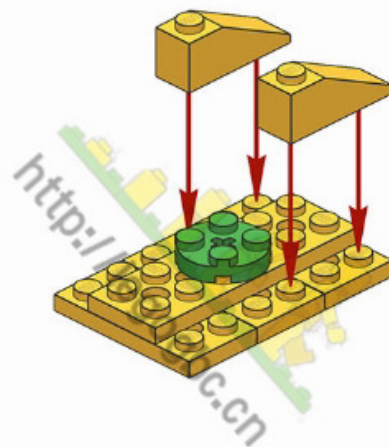


关注公众号获取更多



2x

53



53/70

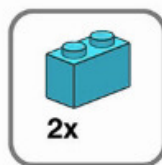
4

83

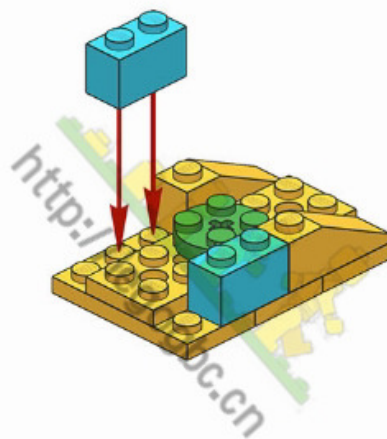




关注公众号获取更多

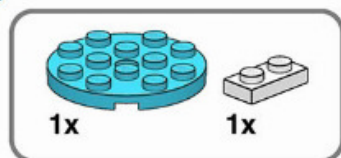


54

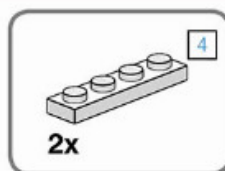
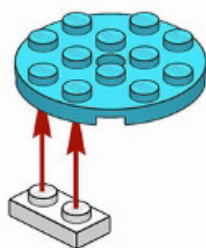




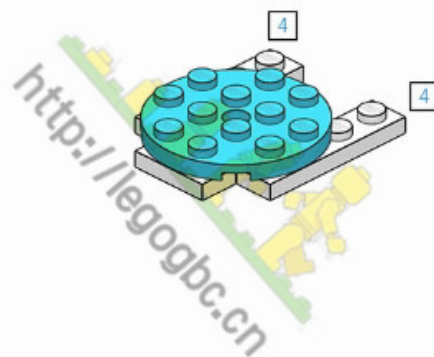
关注公众号获取更多



1



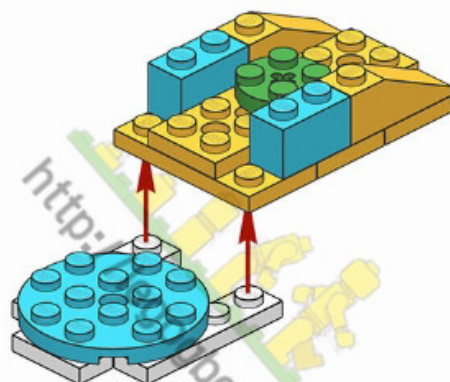
2



56



关注公众号获取更多



http://www.lego.com.cn

56/70

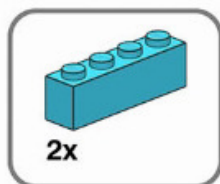
4

86

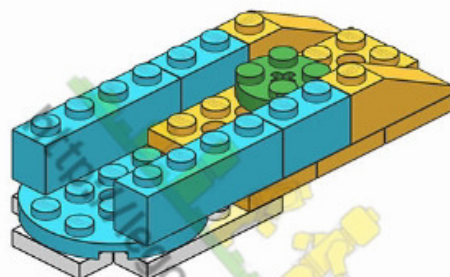




关注公众号获取更多



57



57/70

4

87

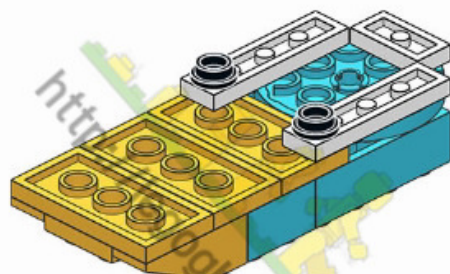




关注公众号获取更多



58

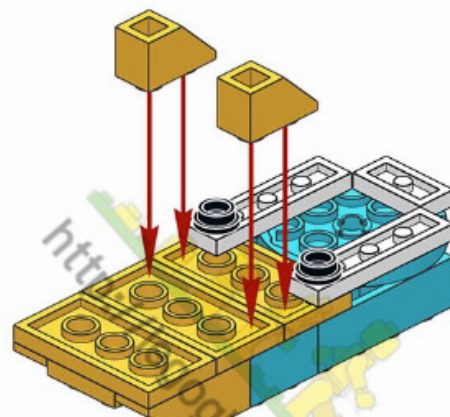




关注公众号获取更多



59



59/70

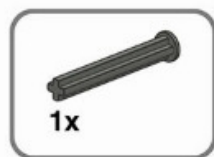
4

89

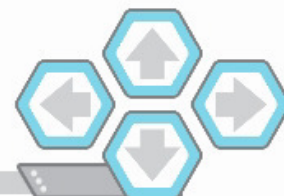
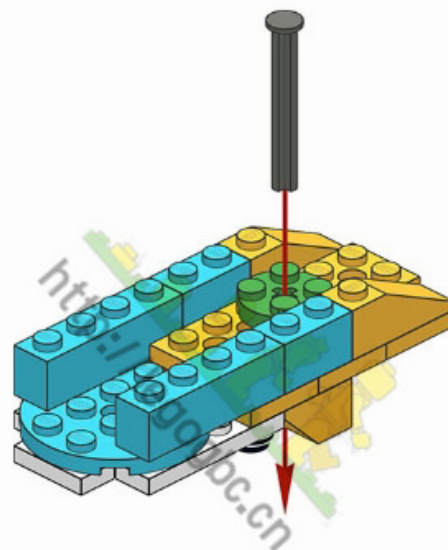




关注公众号获取更多



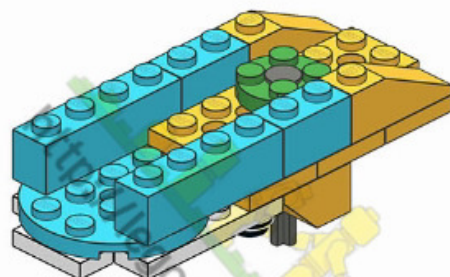
60



61



关注公众号获取更多



61/70

4

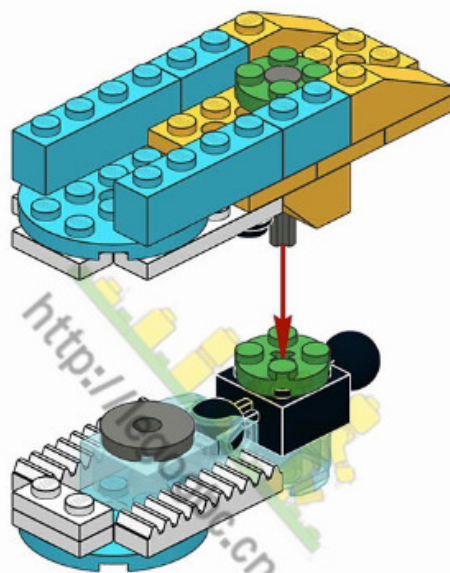
91



62



关注公众号获取更多



62/70

4

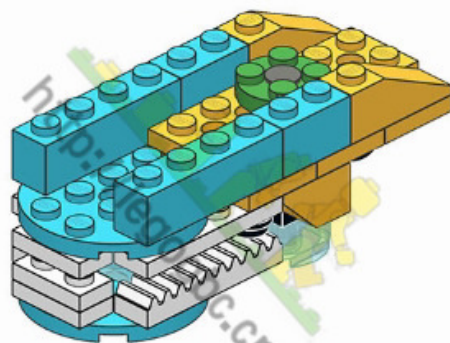
92



63



关注公众号获取更多



63/70

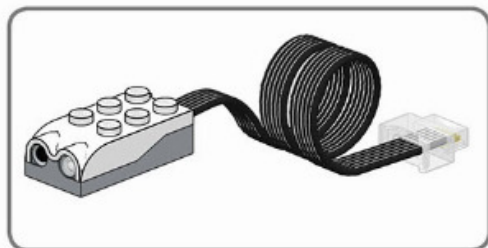
4

93

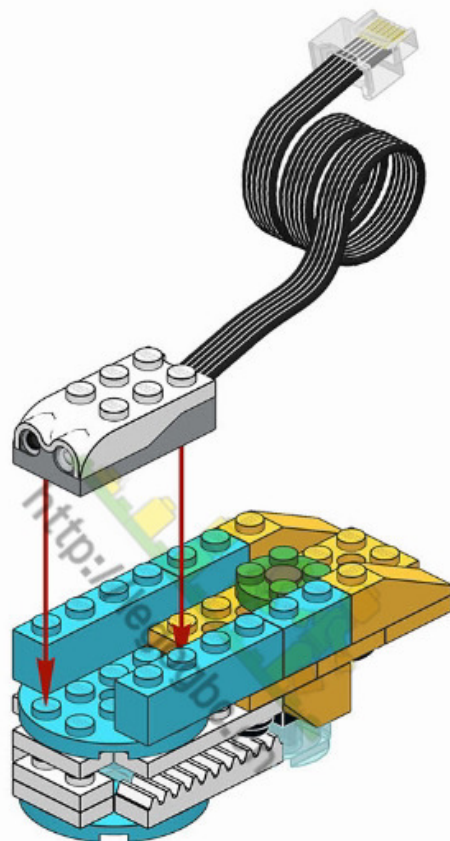




关注公众号获取更多



64



64/70

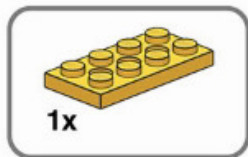
4

94

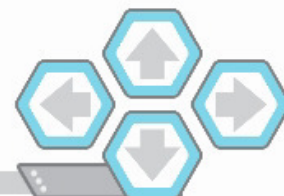
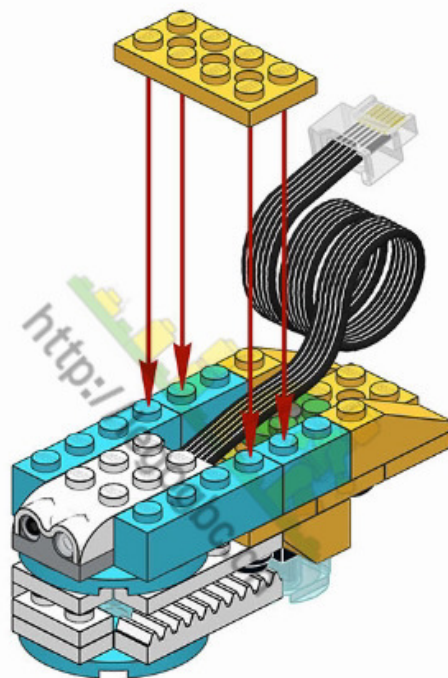




关注公众号获取更多

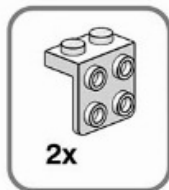


65

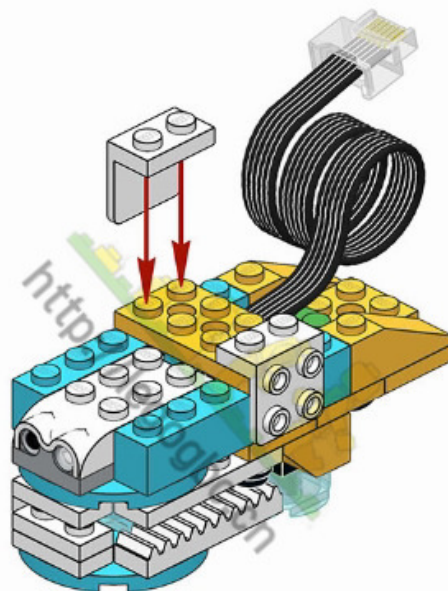


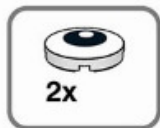


关注公众号获取更多



66

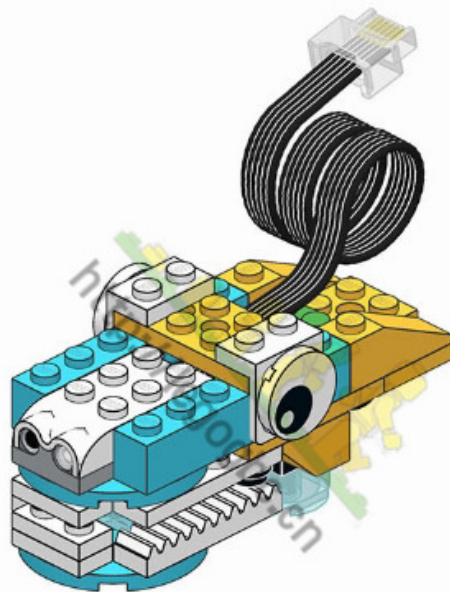




67



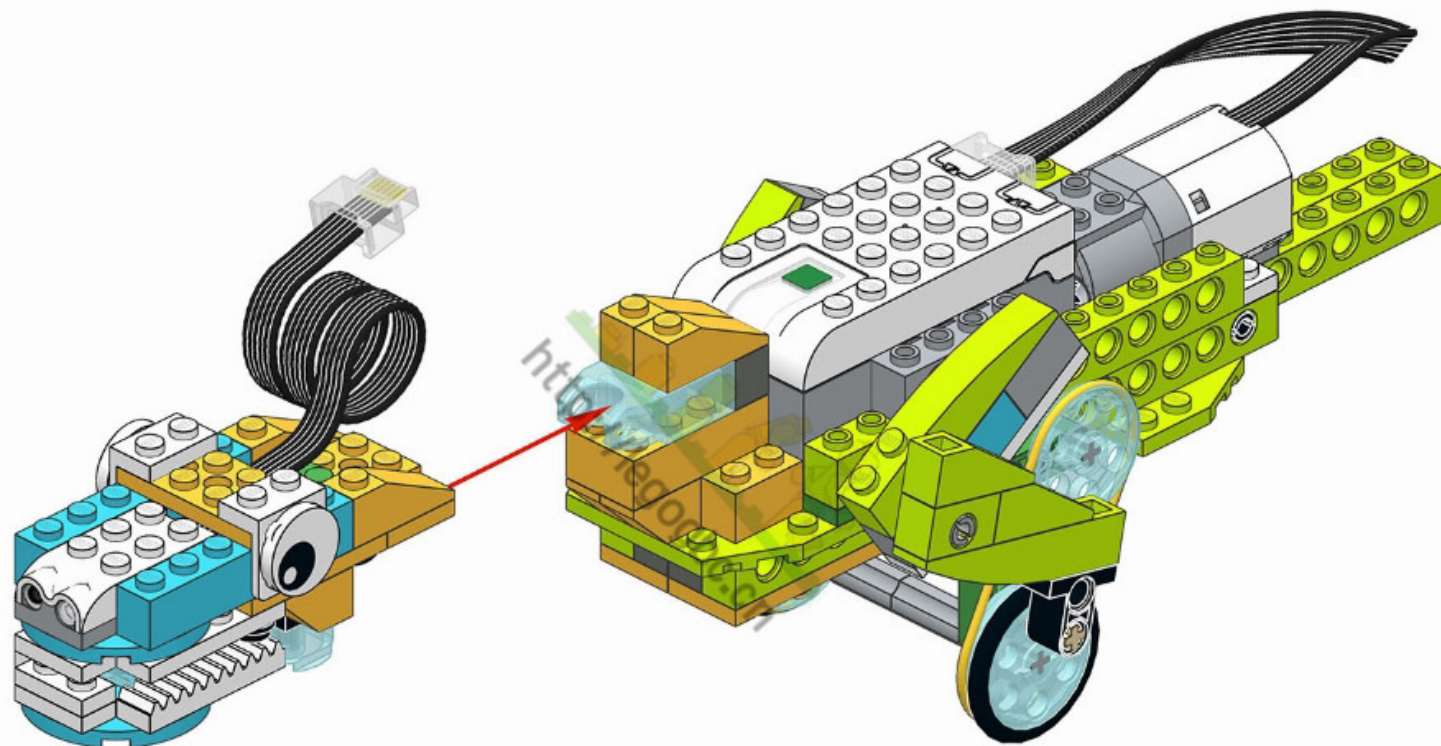
关注公众号获取更多



68



关注公众号获取更多



68/70

4

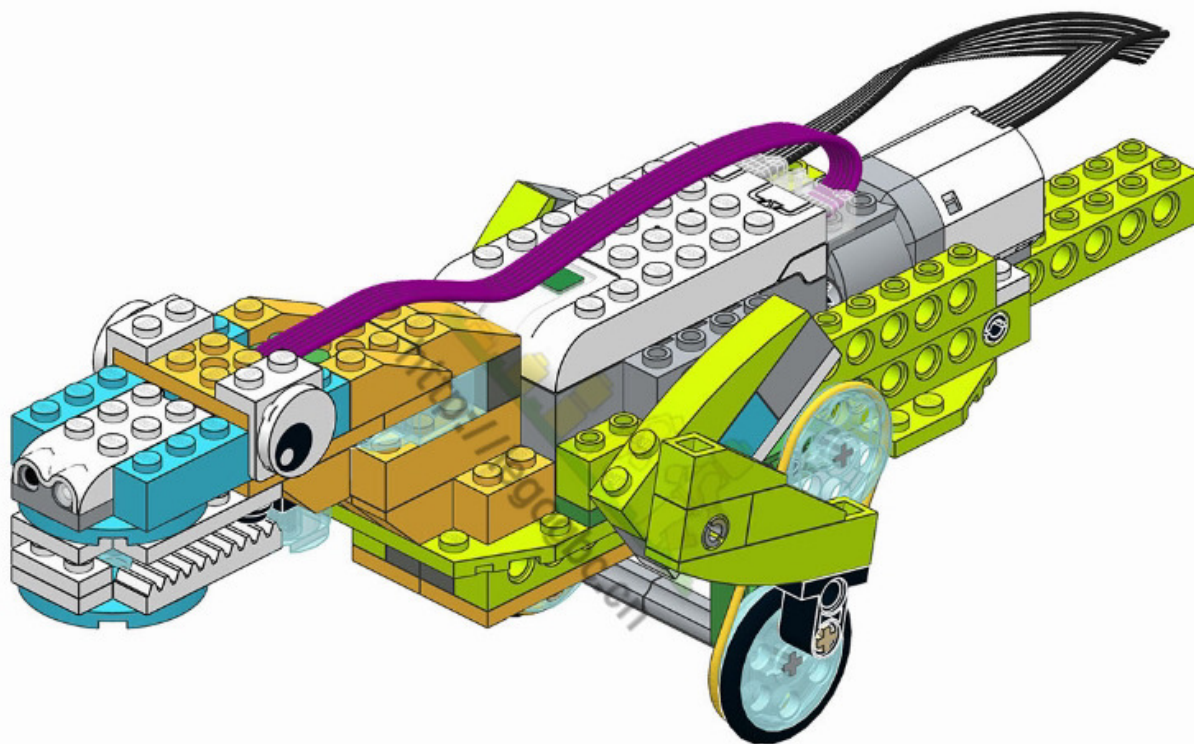
98



69



关注公众号获取更多



69/70

4

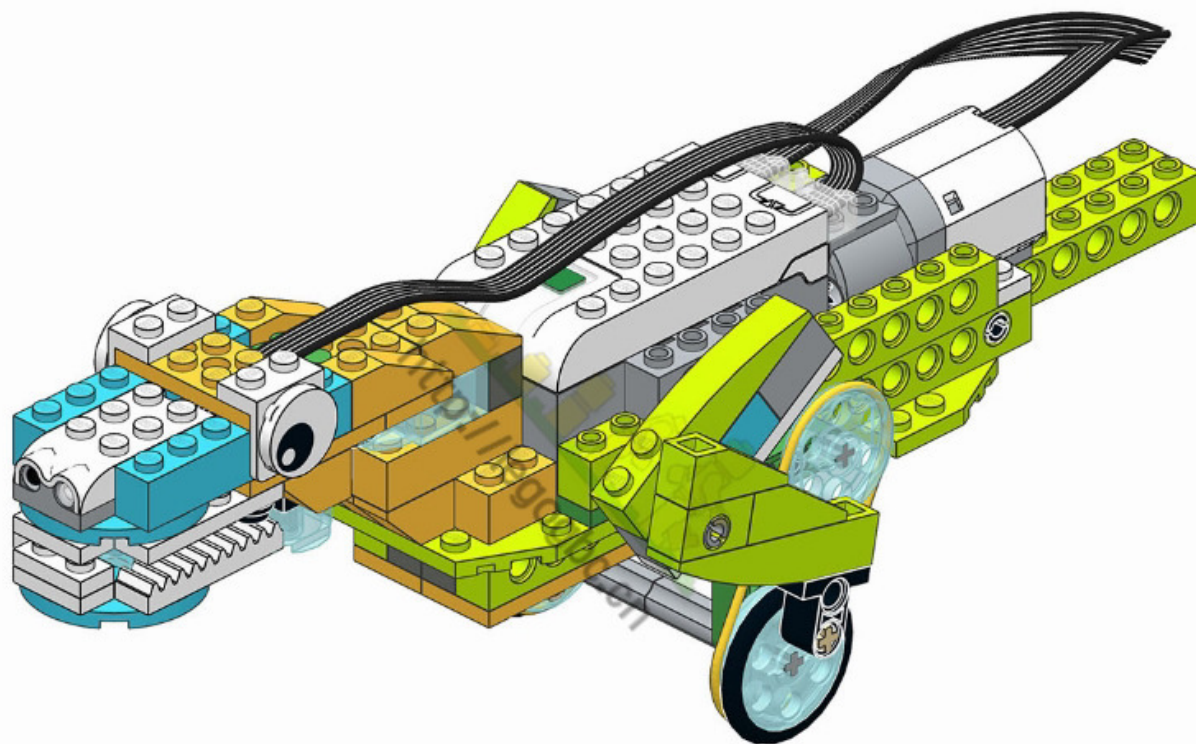
99



70



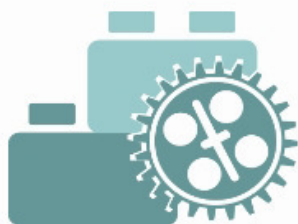
关注公众号获取更多





Enhanced version

Add robot's short front paws and decorative elements of the head, tail and feet.



T-Rex



关注公众号获取更多



4

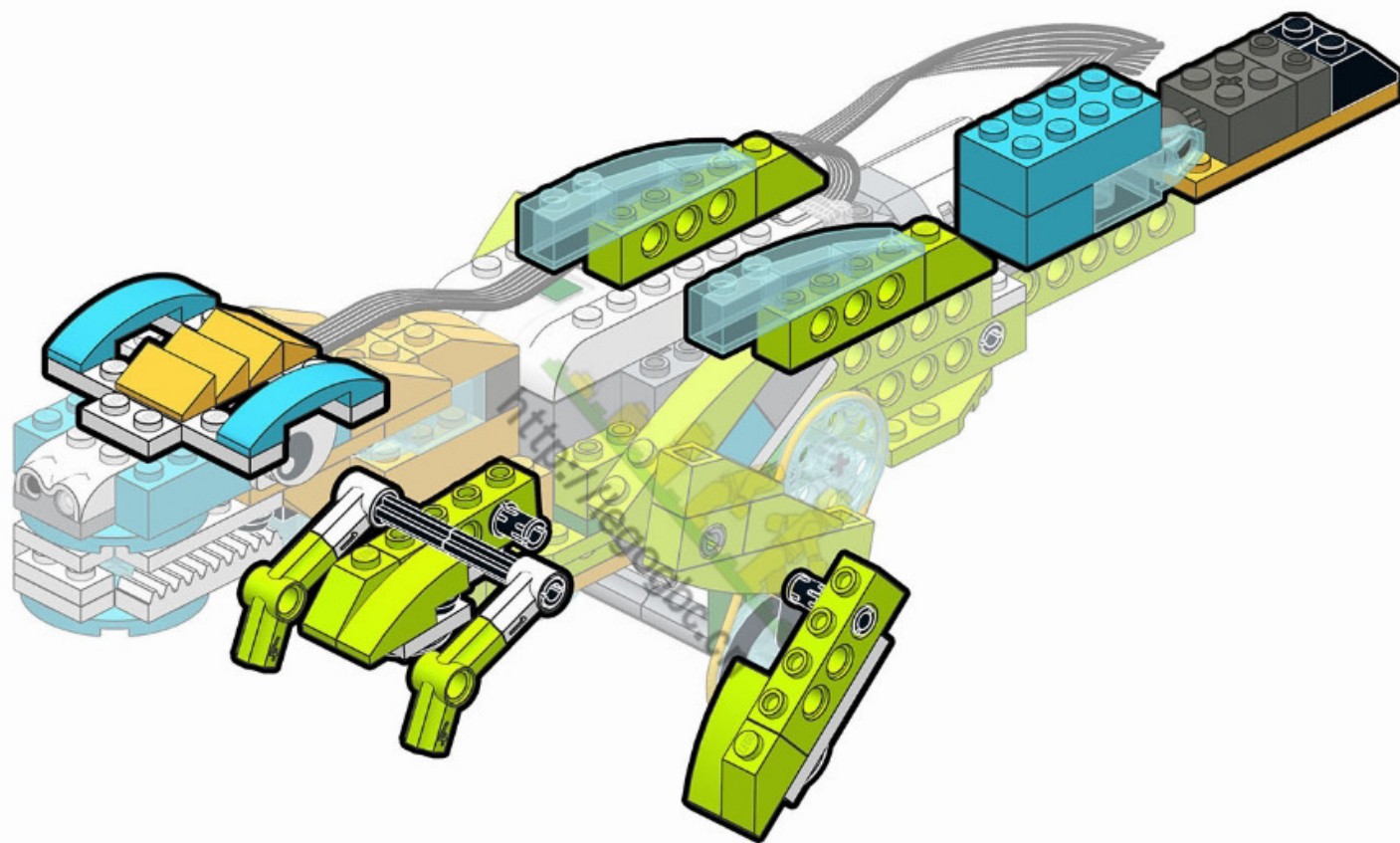


101



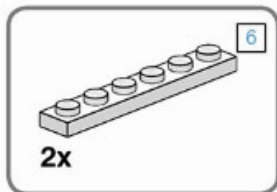


关注公众号获取更多

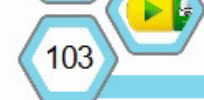
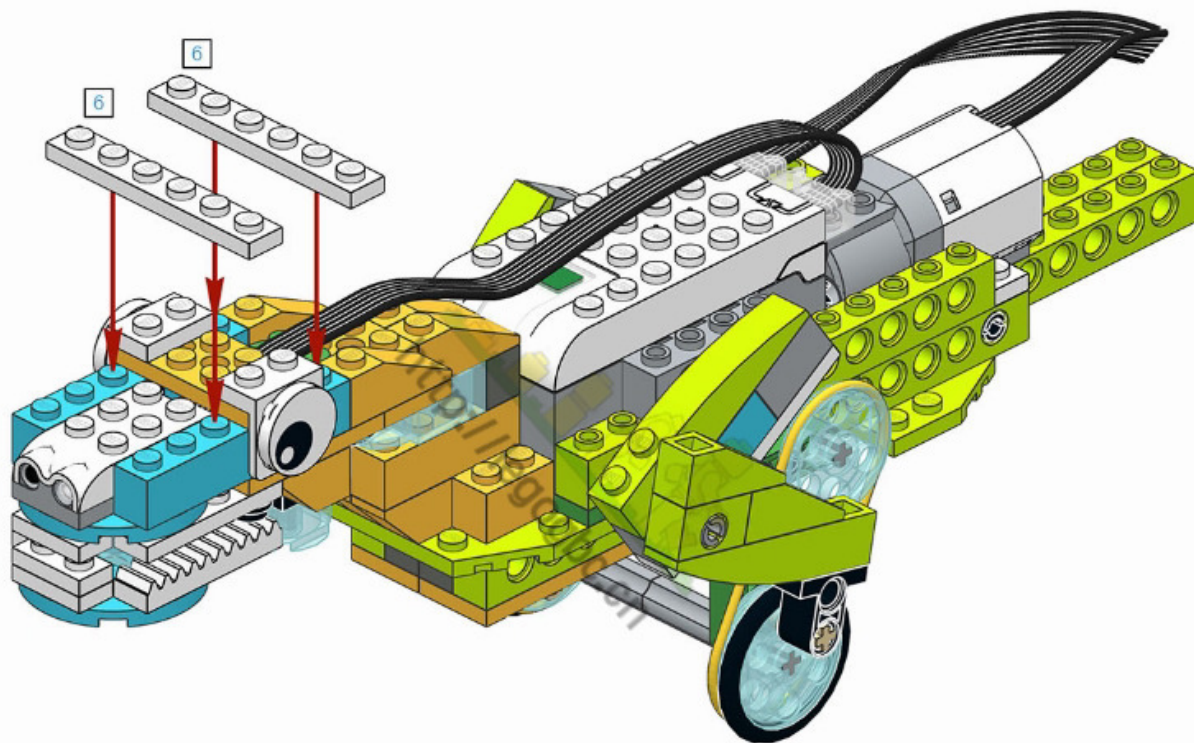




关注公众号获取更多



71



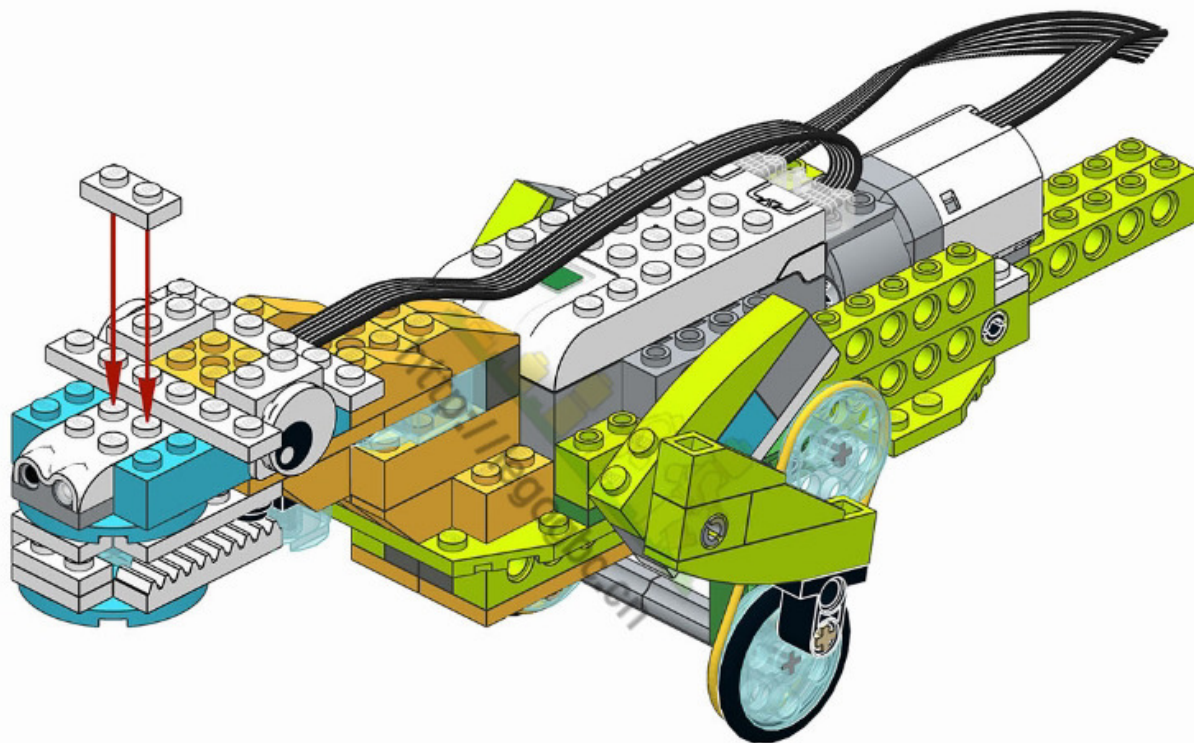


关注公众号获取更多



1x

72



3/20

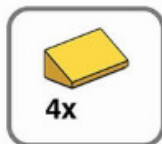
4

104



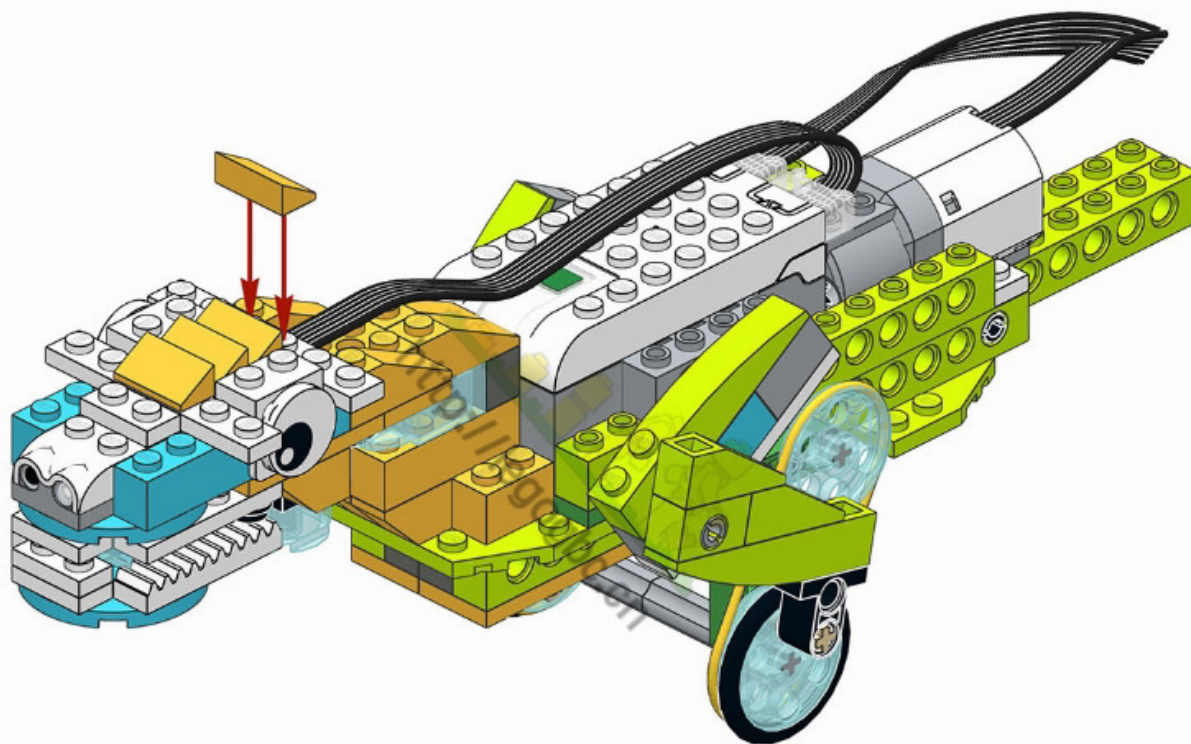


关注公众号获取更多



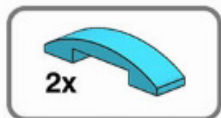
4x

73

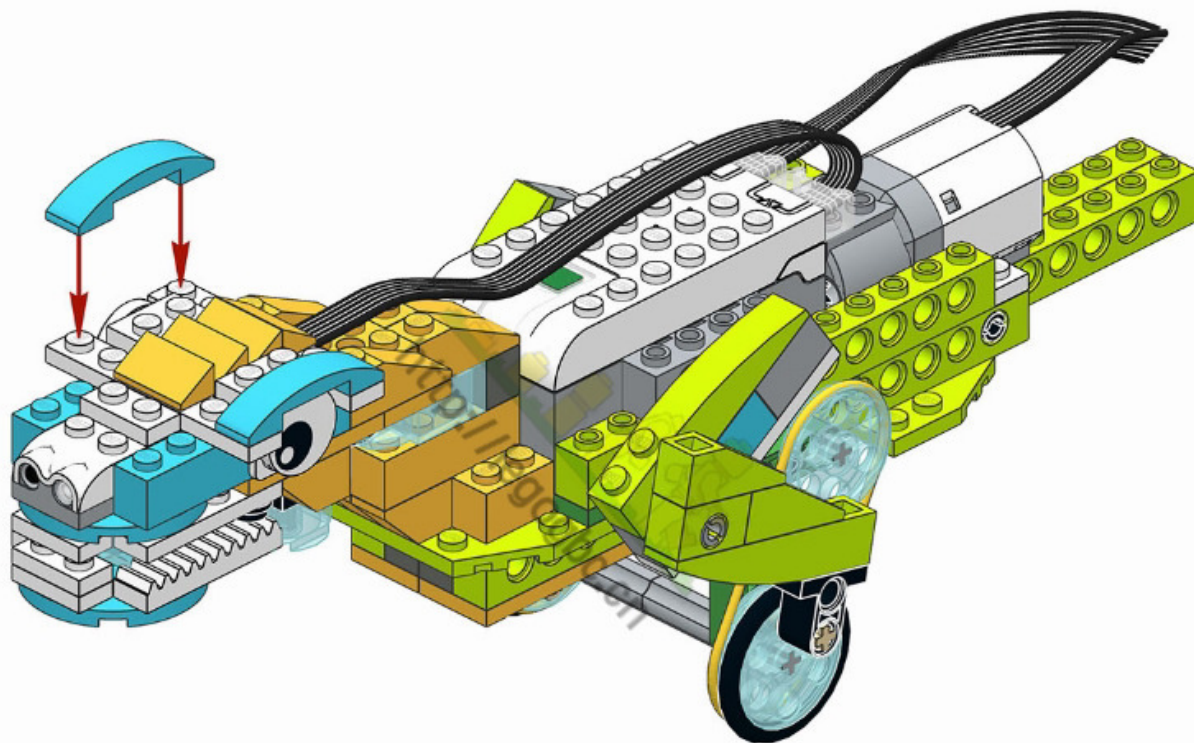




关注公众号获取更多

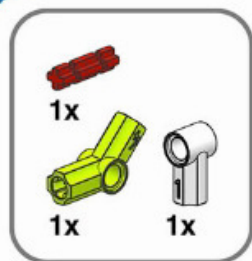


74

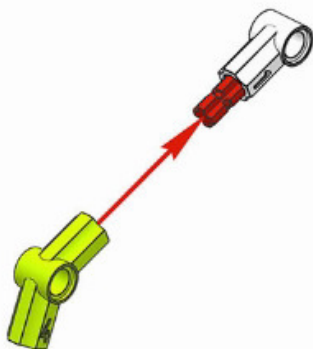




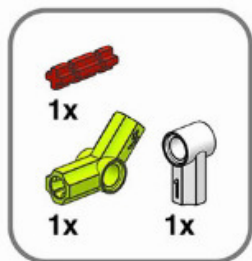
关注公众号获取更多



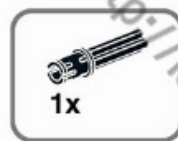
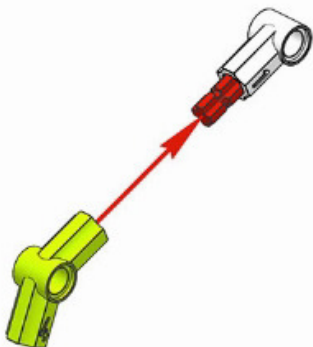
1



2



1



2



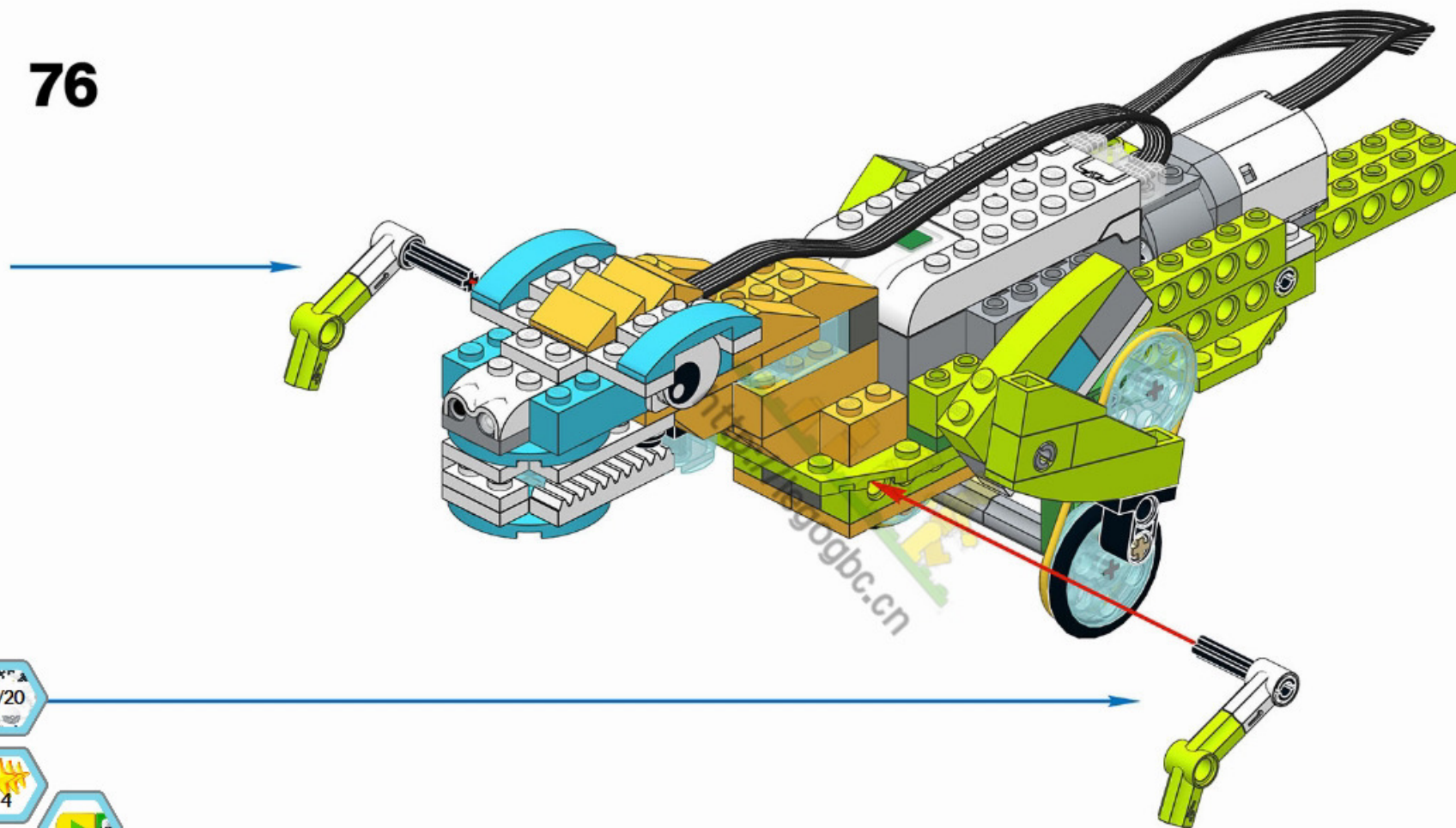
<http://legogbc.cn>



76



关注公众号获取更多



7/20

4

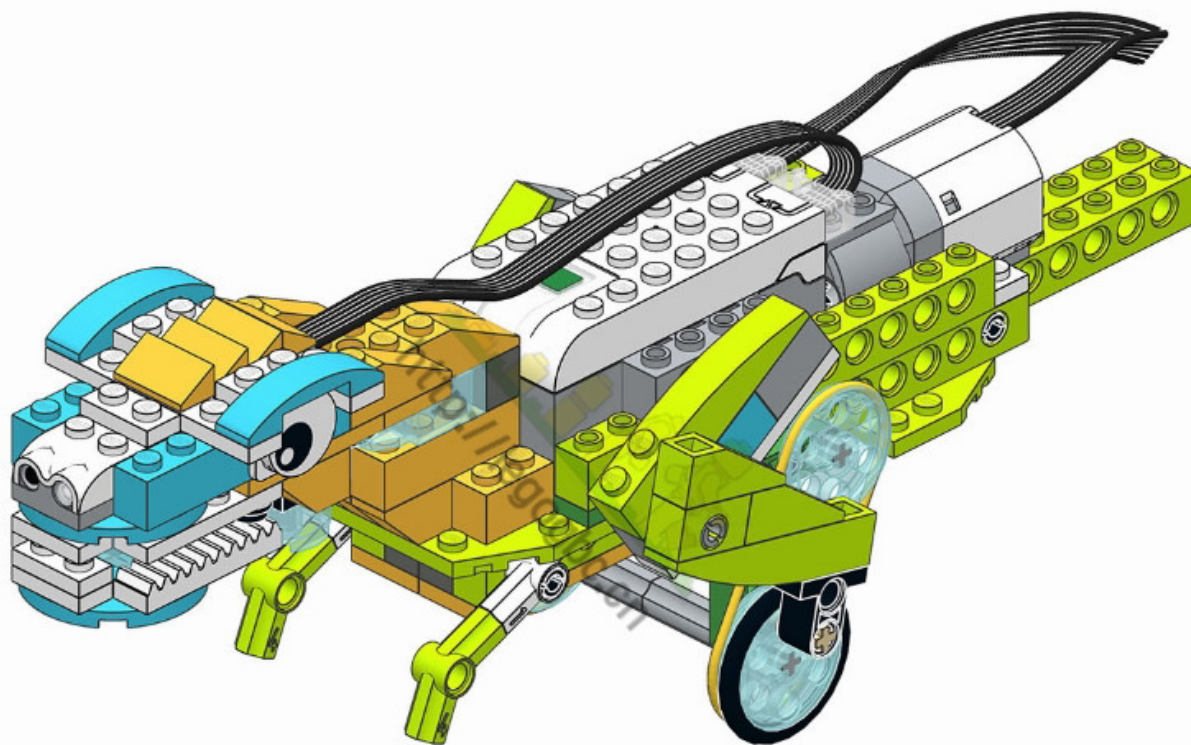
108



77



关注公众号获取更多



8/20

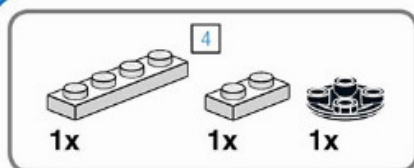
4

109

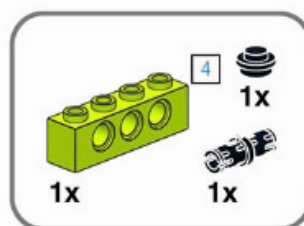
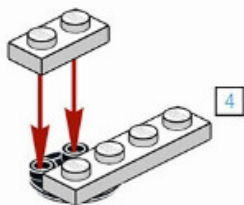




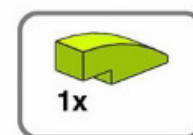
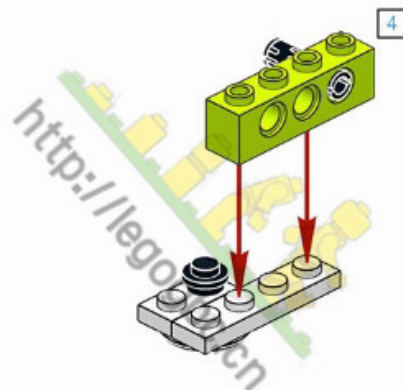
关注公众号获取更多



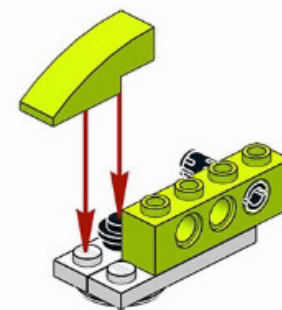
1



2



3



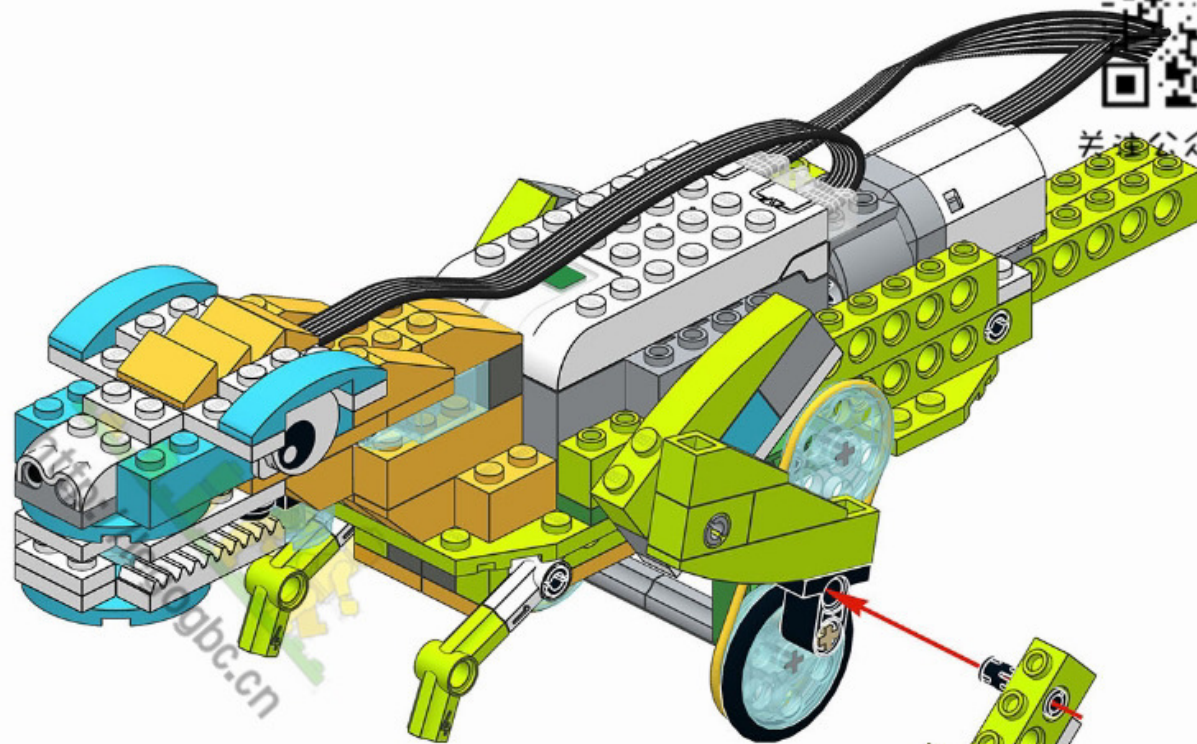
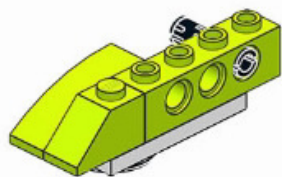


关注公众号获取更多



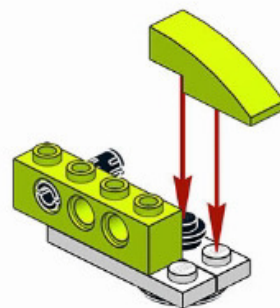
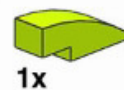
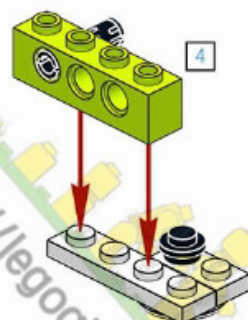
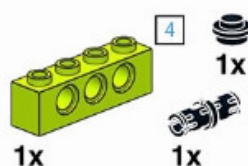
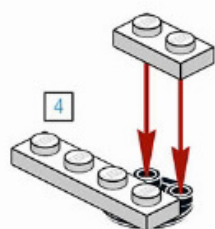
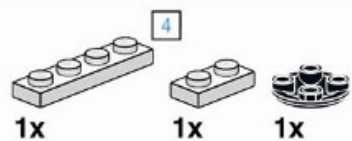
1x

4





关注公众号获取更多

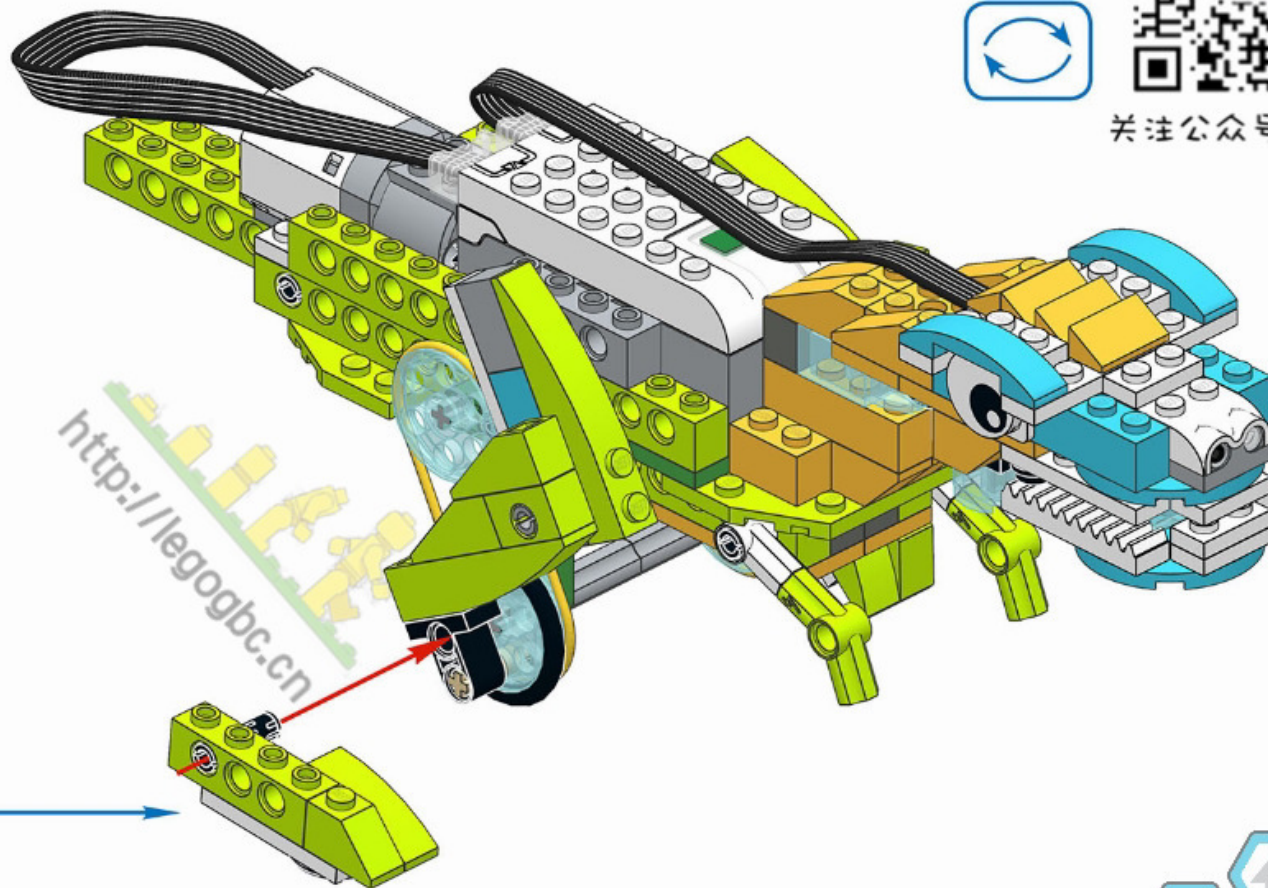
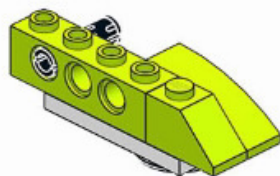




关注公众号获取更多



1x



12/20

4

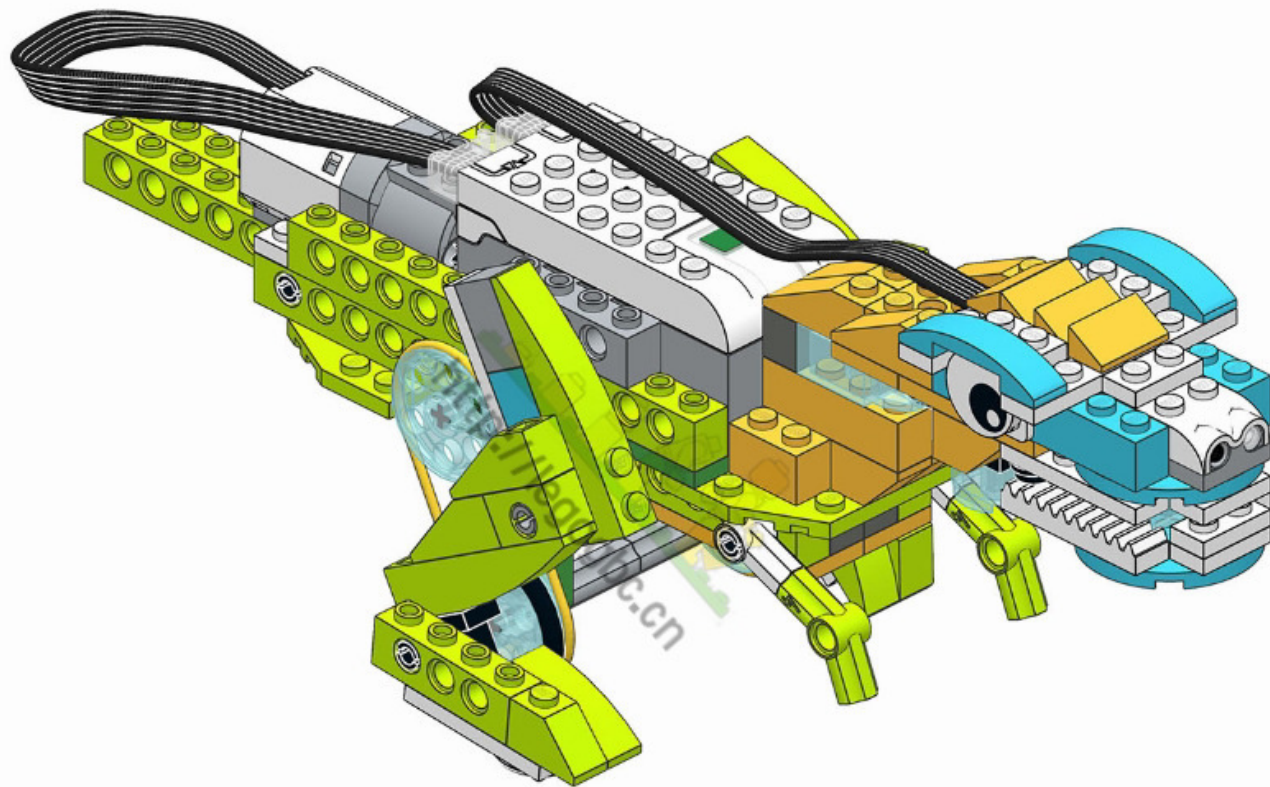
113



82



关注公众号获取更多



13/20

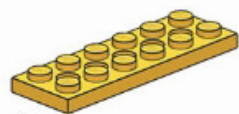
4

114





关注公众号获取更多

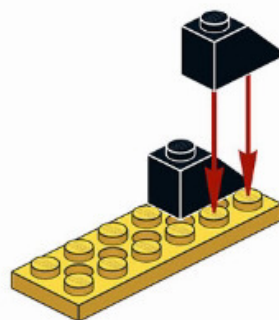


1x



2x

1



1x

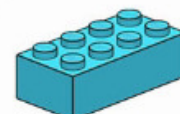
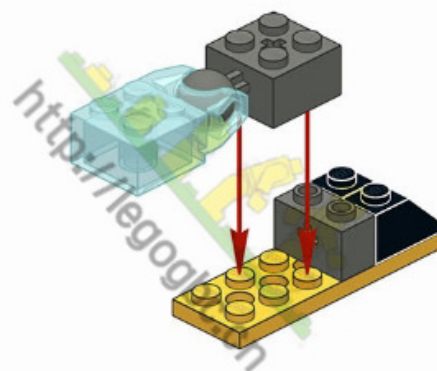


1x



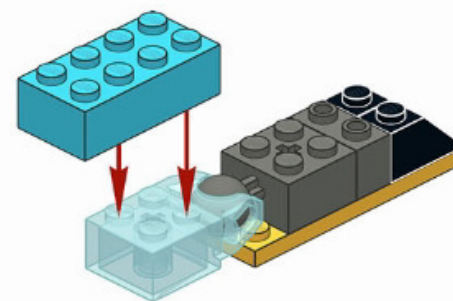
1x

2



1x

3



14/20

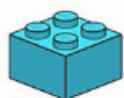
4

115



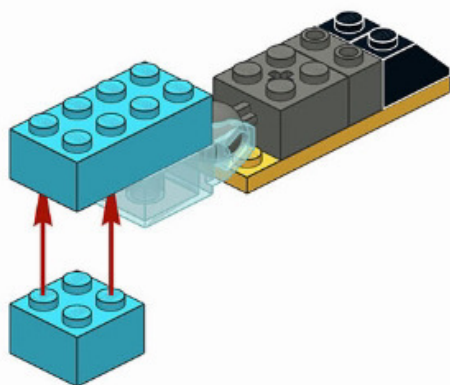


关注公众号获取更多

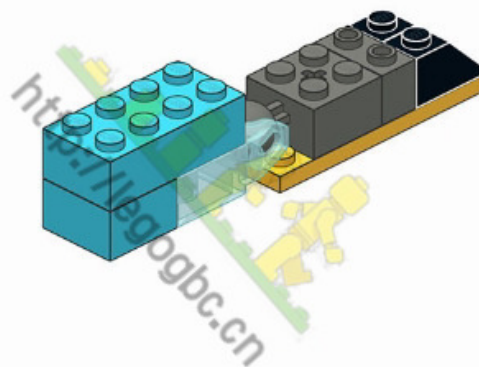


1x

4



5



15/20

4

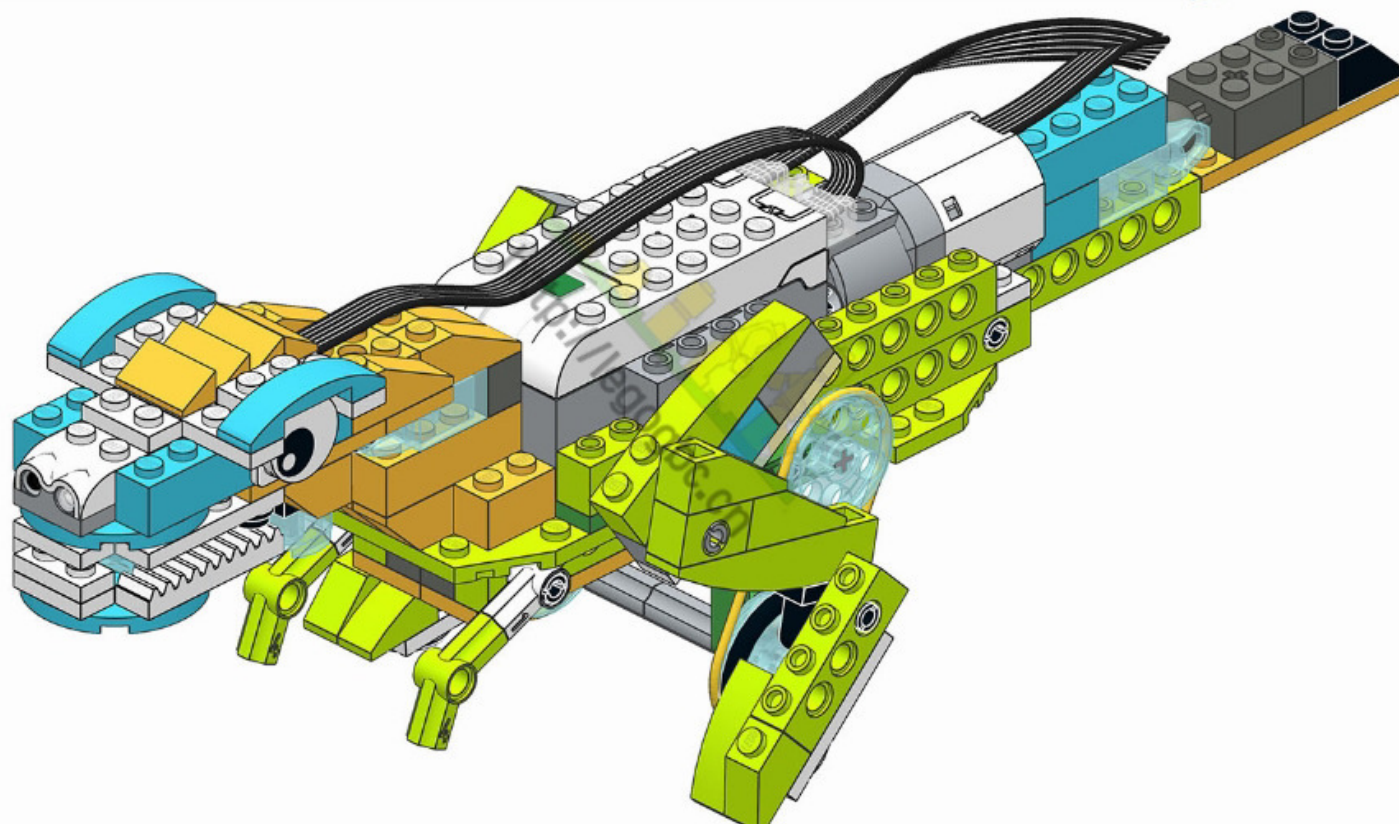
116



85



关注公众号获取更多



16/20

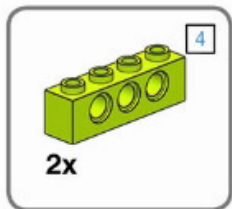
4

117

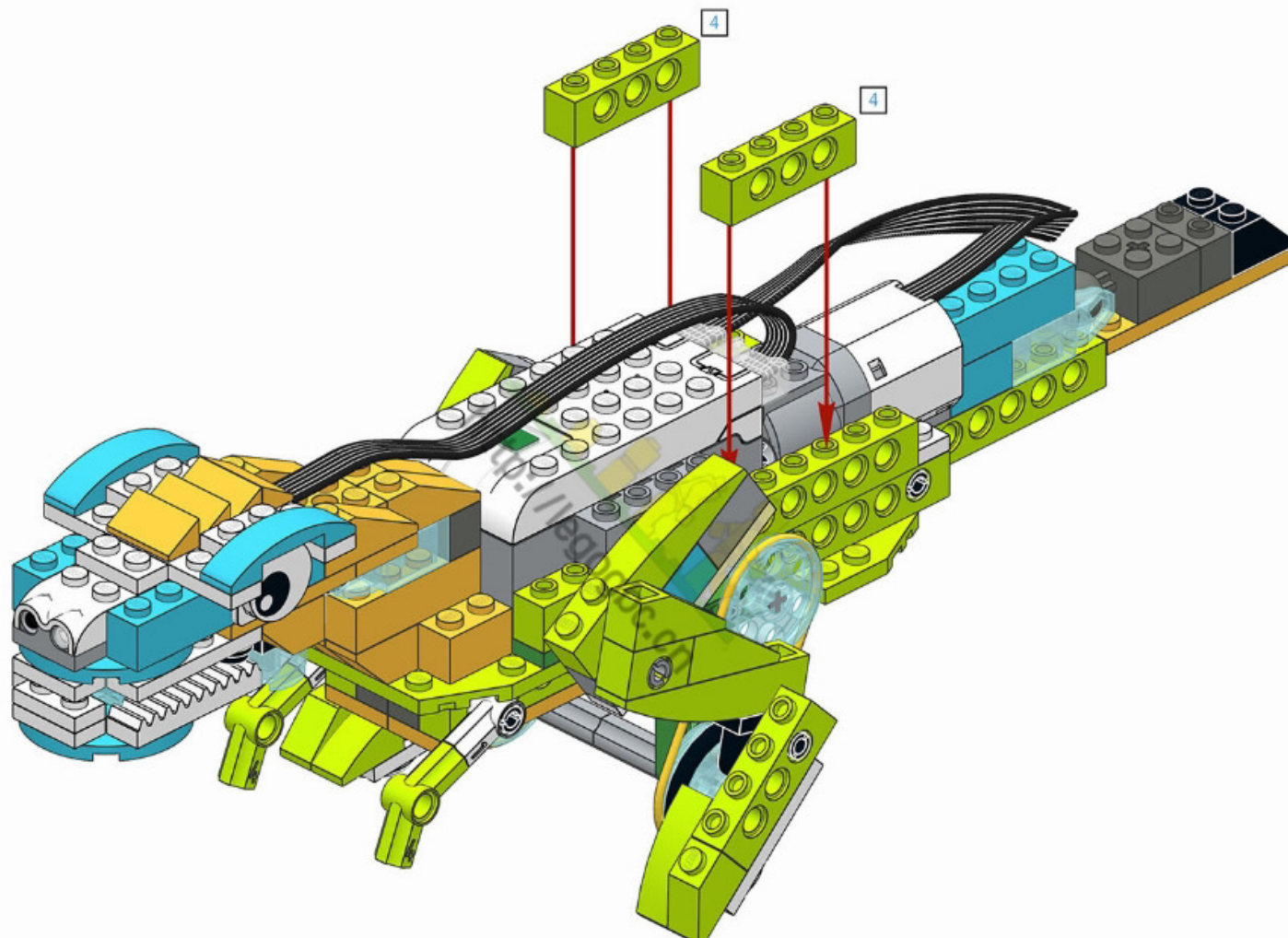




关注公众号获取更多



86



17/20

4

118

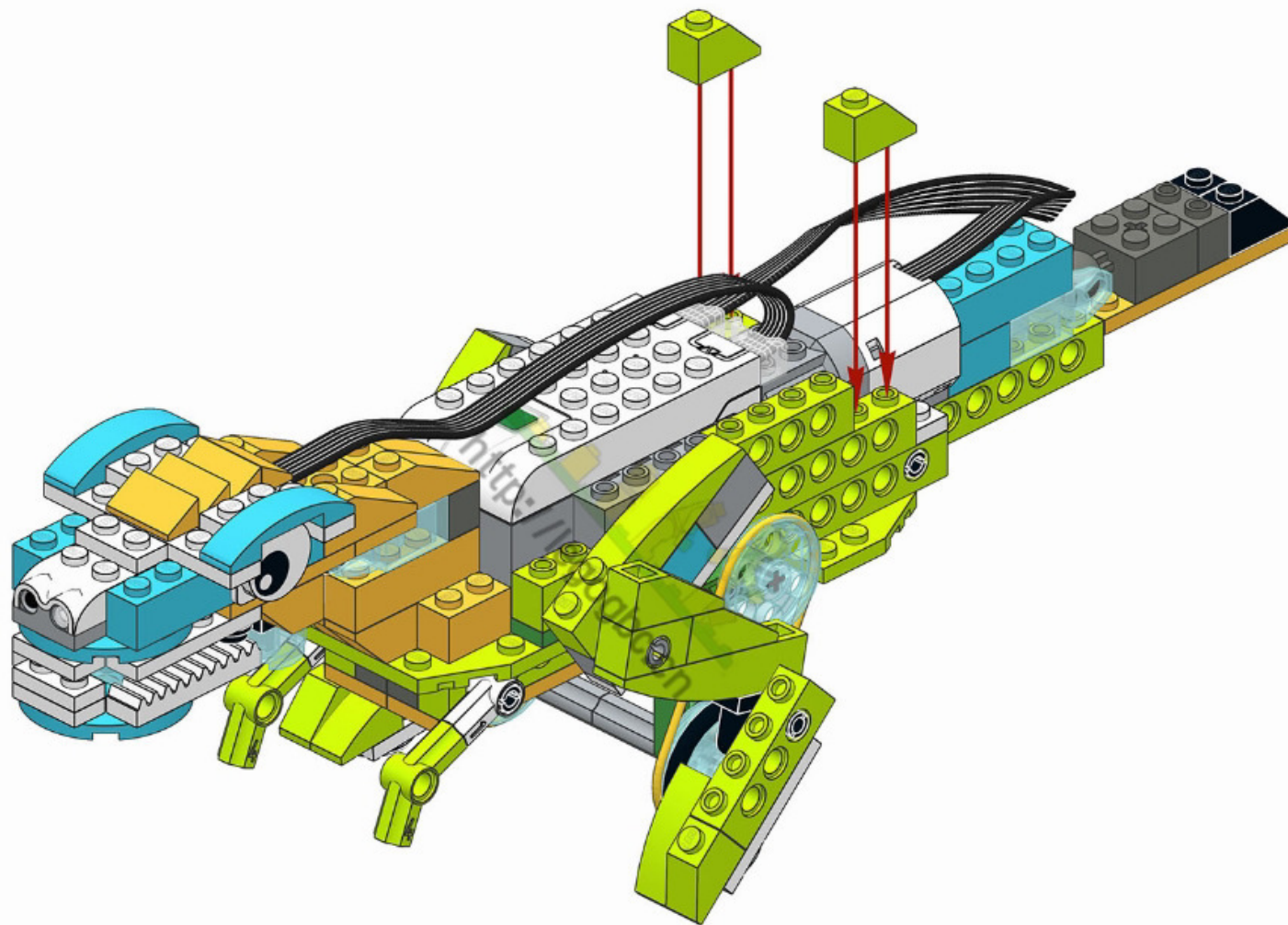




关注公众号获取更多



87



18/20

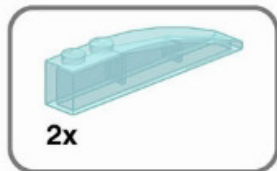
4

119

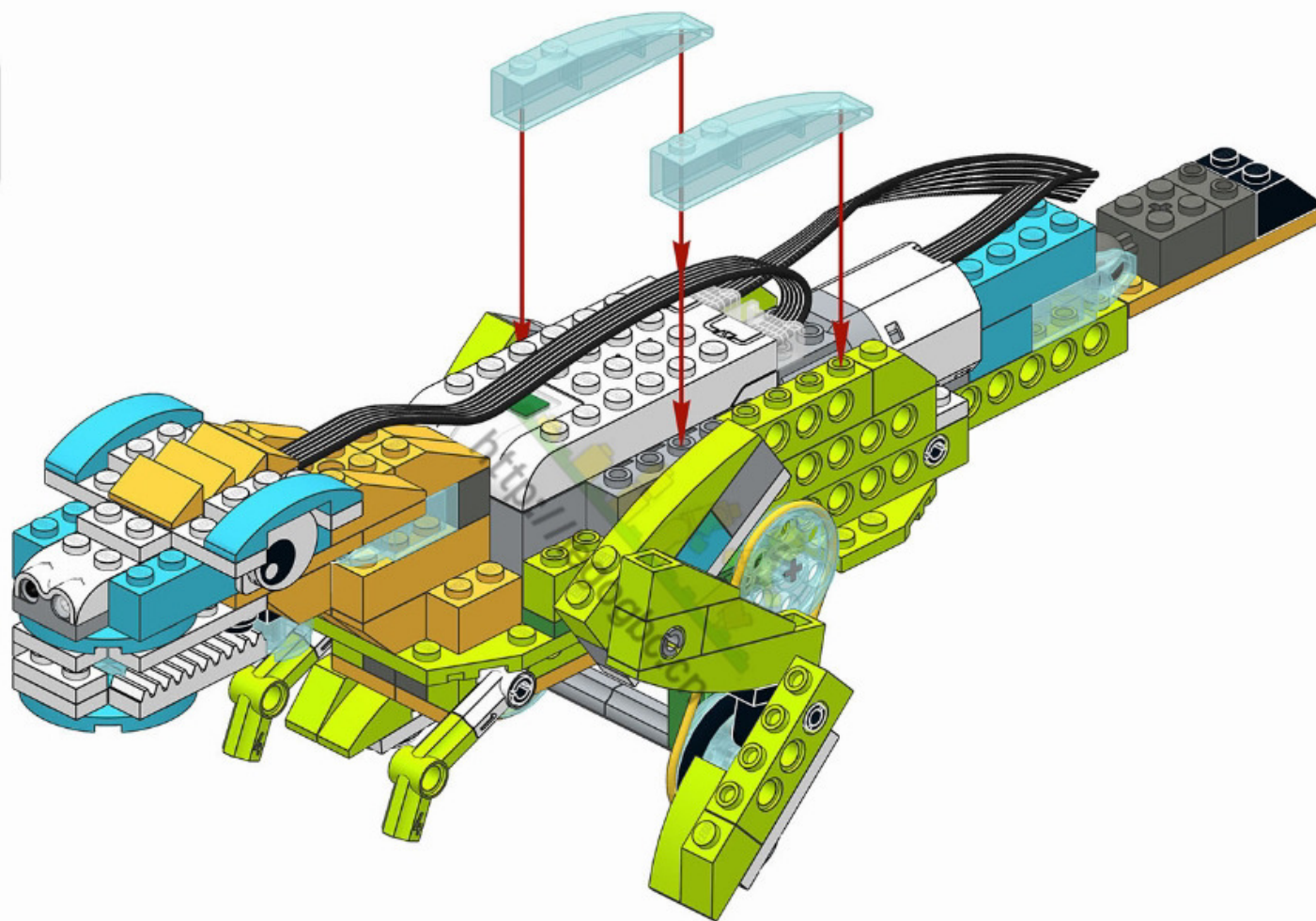




关注公众号获取更多



88



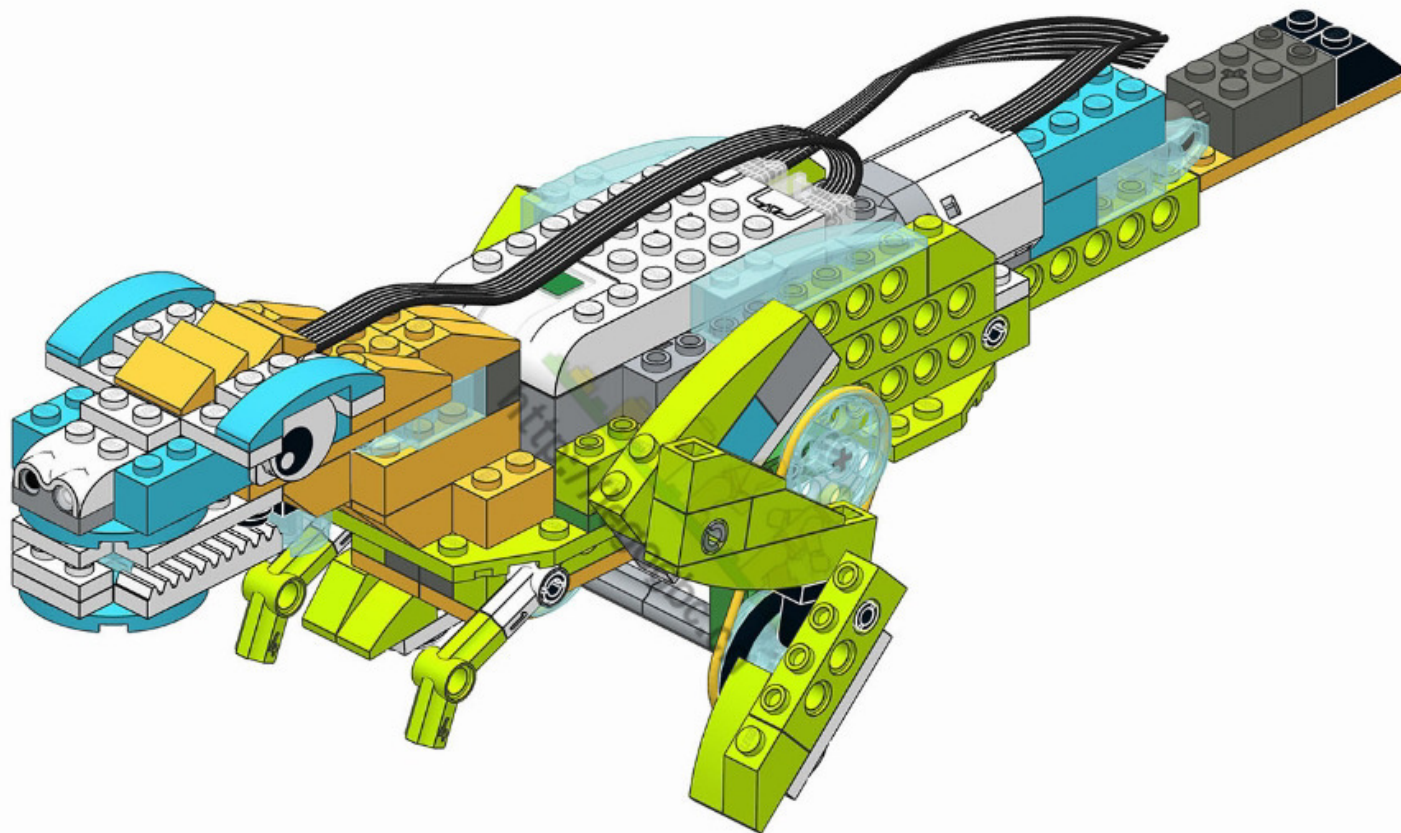
19/20

4

120



89



关注公众号获取更多

20/20

4

121





Check it out!

Avoid any friction
between the cables
while robot is moving.



关注公众号获取更多



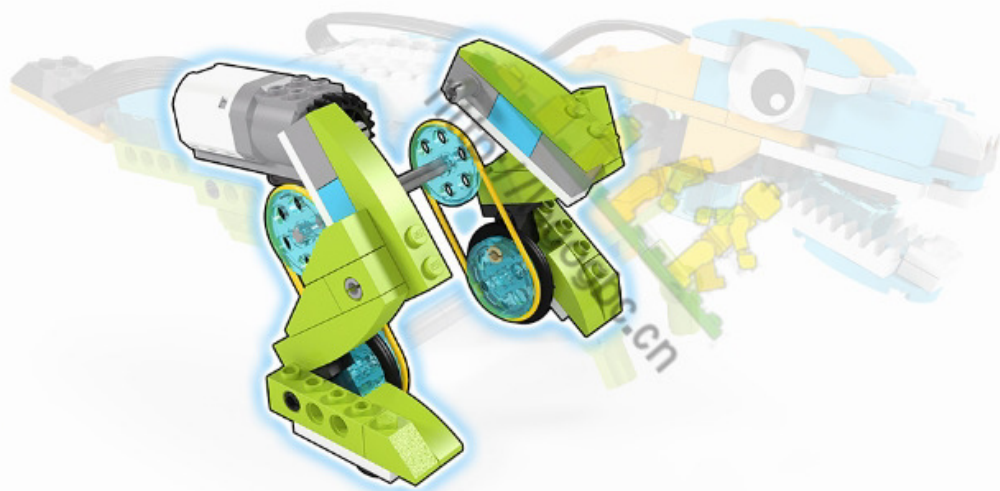
122





Task

Place parts of the robot on the right places



关注公众号获取更多



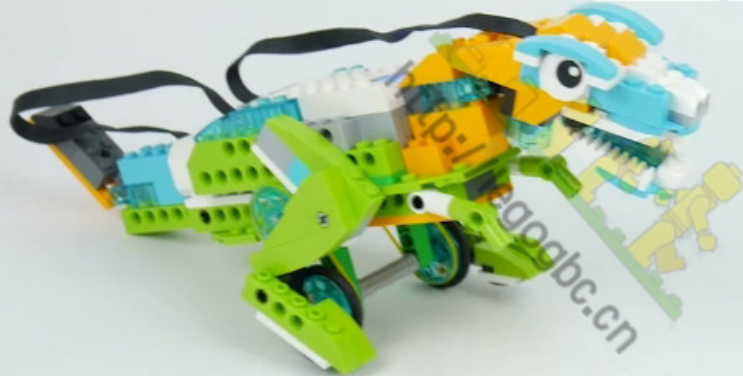
123





Task 1

To test the work of the mechanism, program the robot's movement forward for two seconds.



robotiseit.com



关注公众号获取更多



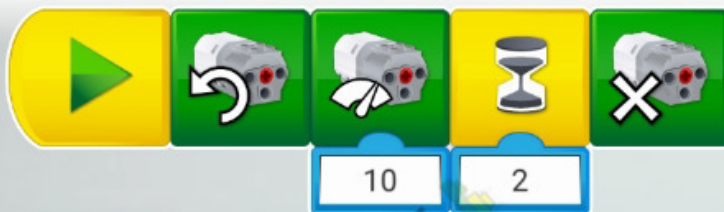
124





Task 2

Program the robot's movement at a maximum speed of 10 and stop in 2 seconds.
How does a robot do?



roboriseit.com



关注公众号获取更多



125

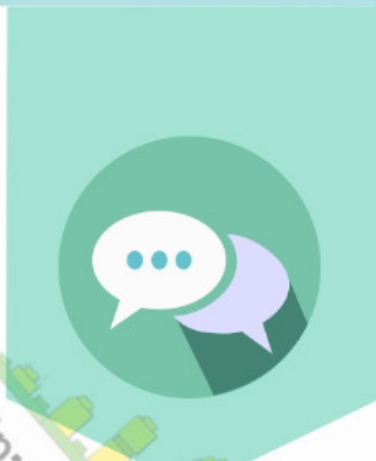




Discuss!



关注公众号获取更多



At a sudden stop robot falls forward by inertia. How to avoid this?

<http://lego4uc.org>



7



126

