

## **Neighborhood Safety**

### Competition Announcement



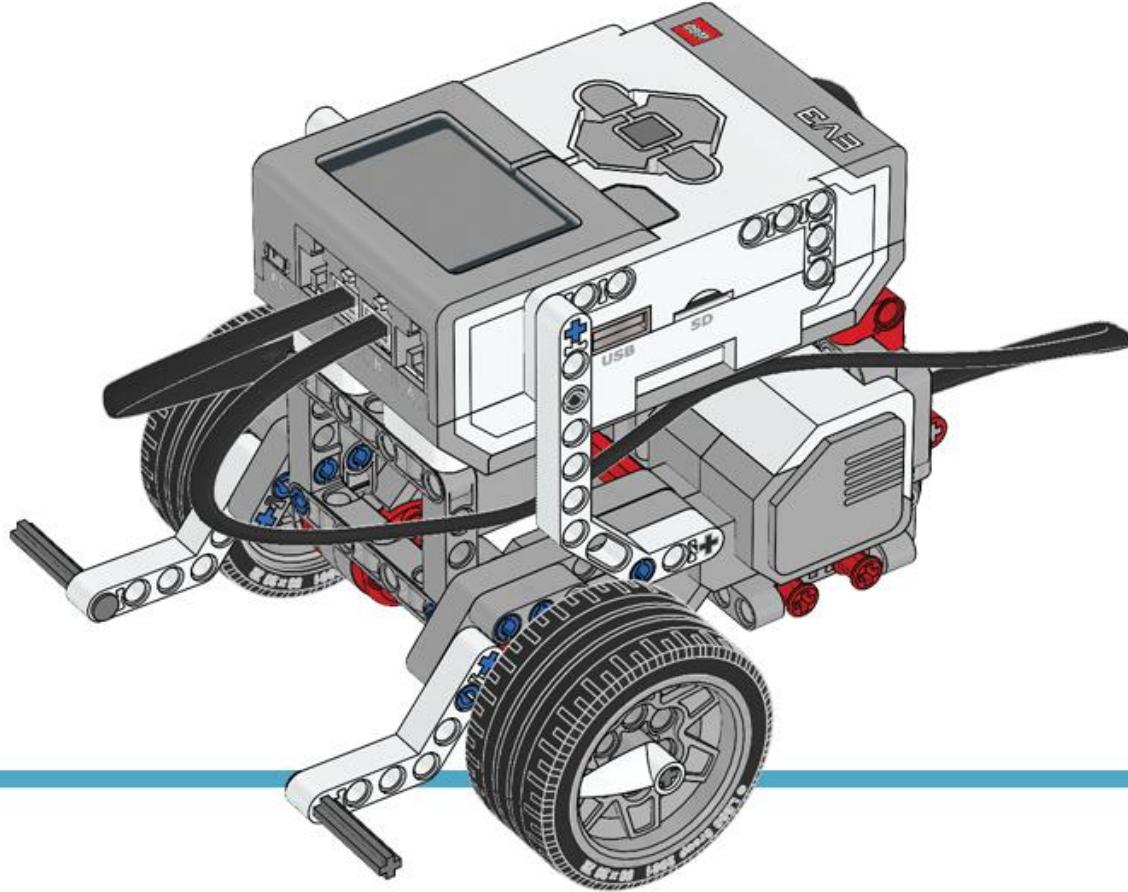
The participants in this competition are tasked with building and programming an autonomous ambulance. The ambulance will keep the neighborhood safe by driving around its route and picking up anybody who needs help. The ambulance will be built from the 'Robot Educator' driving base, as well as the color sensor and the ultrasonic sensor, and the medium motor.

Important concepts for completing the competition include: loops, switches, variables, color and ultrasonic sensors, wait blocks, and motor movements. Student will also complete challenges in order to prepare them.

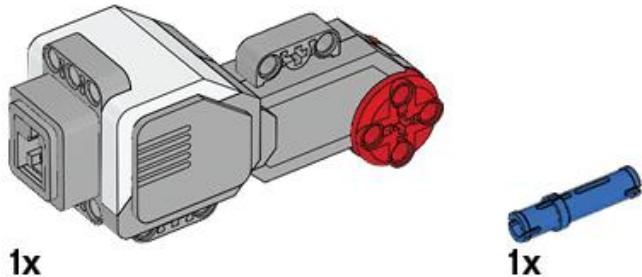
On Sunday, the 1<sup>st</sup> of November, the participants will bring home a kit. They will be responsible for building the robots and bringing them to the competition.

Participants will first assemble the driving base, and then add on the color sensor (facing downwards), the ultrasonic sensor, and the medium motor with arm.

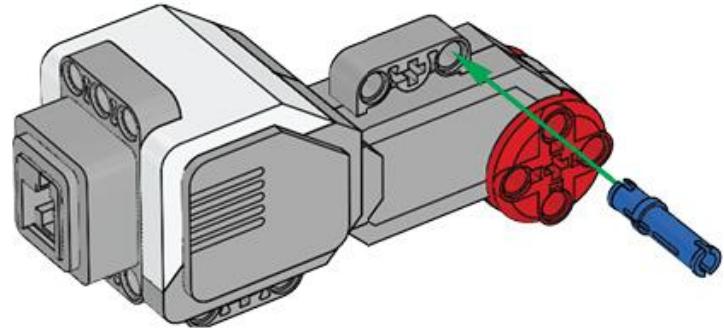
The original instructions in this file were for the Education Edition. Participants using the Home Edition will need to build a slightly different robot. For example, the Home Edition uses an Infrared Sensor instead of an Ultrasonic Sensor. Comment boxes such as this one are located throughout the instructions. Any participants using the Home Edition must pay attention to these boxes. Participants using the Education Edition may ignore these comment boxes.

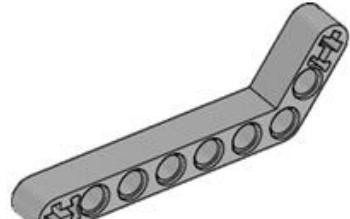


**LEGO** **MINDSTORMS**  
education **EV3**



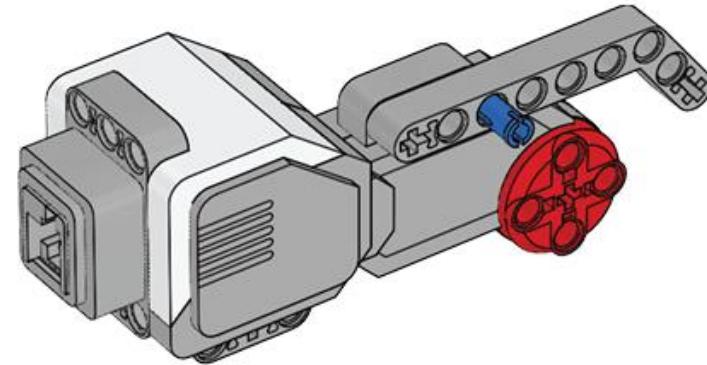
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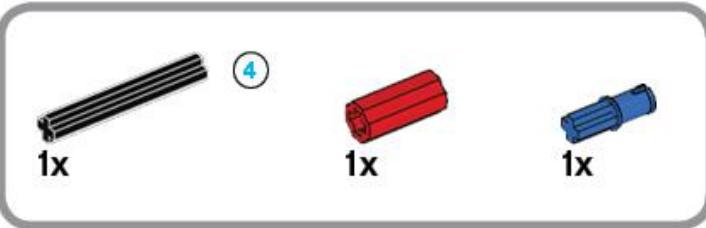




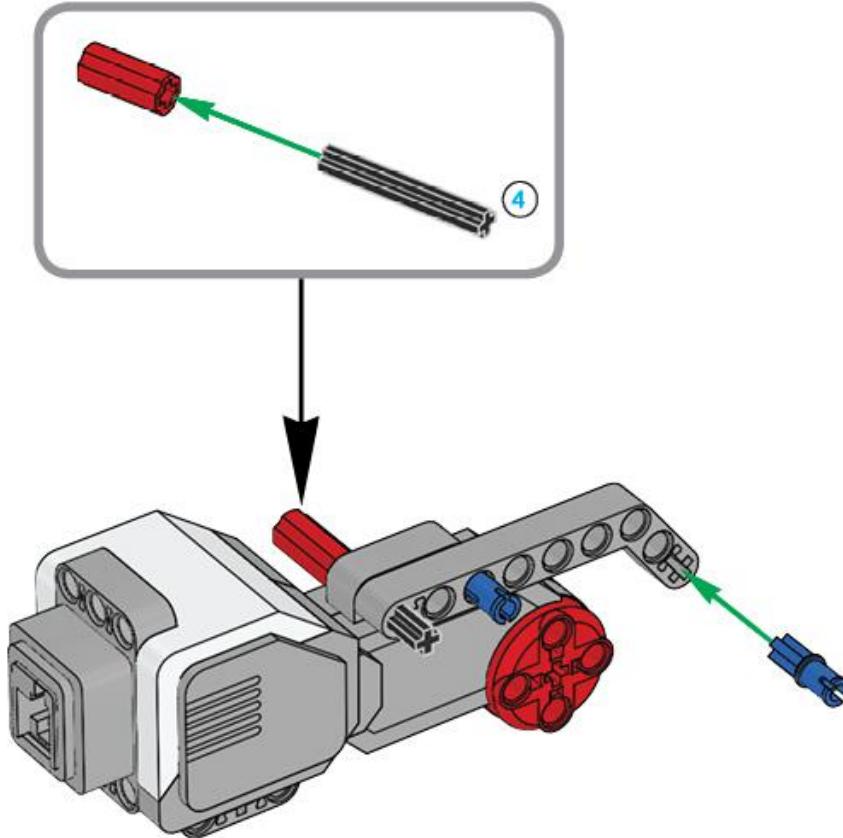
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**2**





3



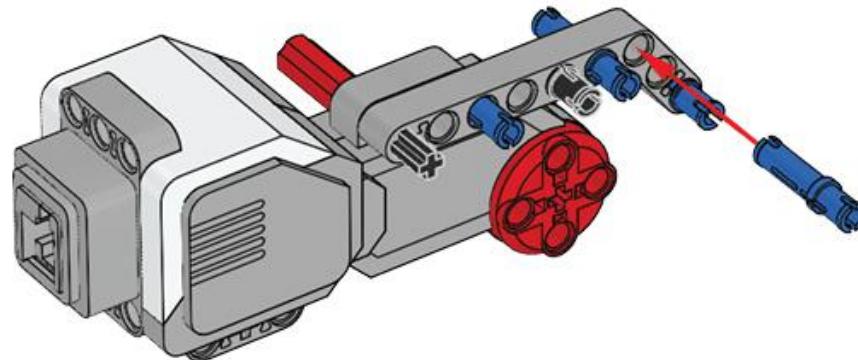


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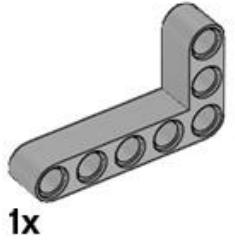


2x

4

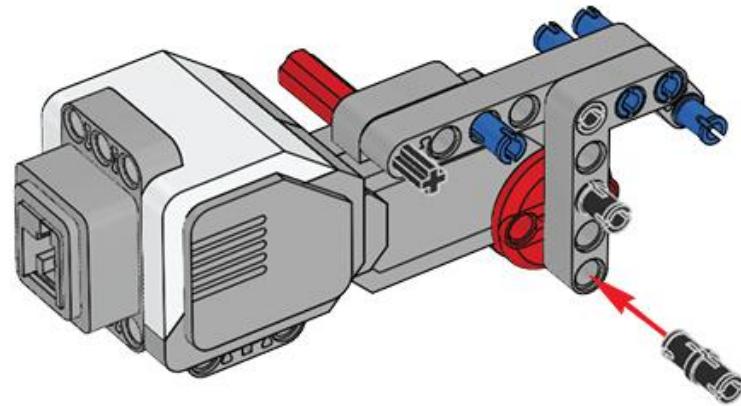


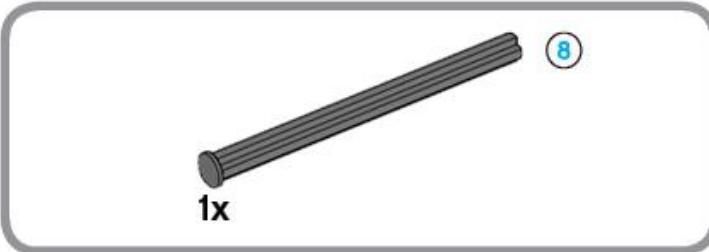
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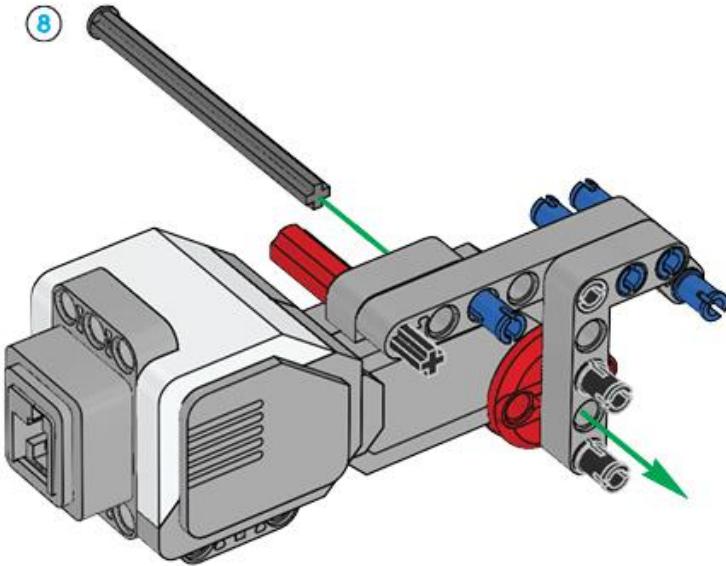
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**5**





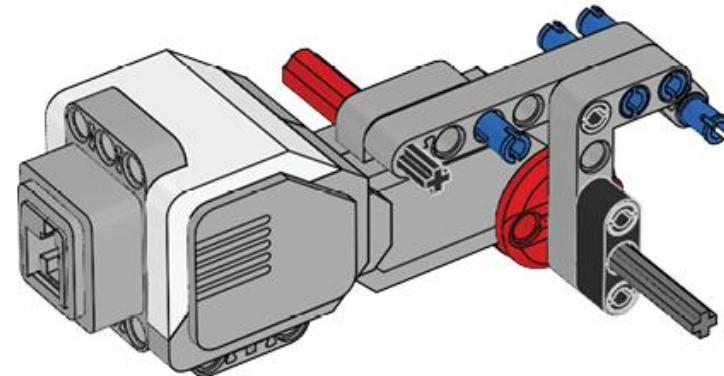
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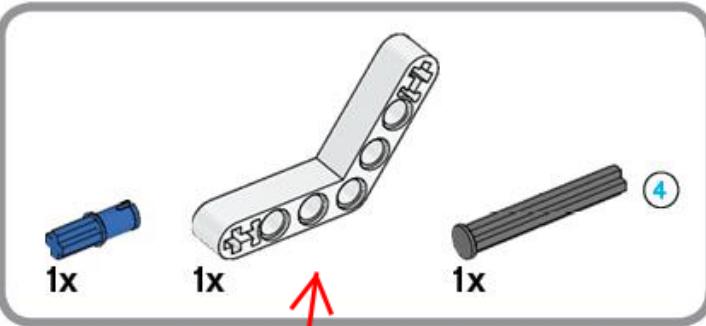




These pieces will  
be grey in the  
Home Edition

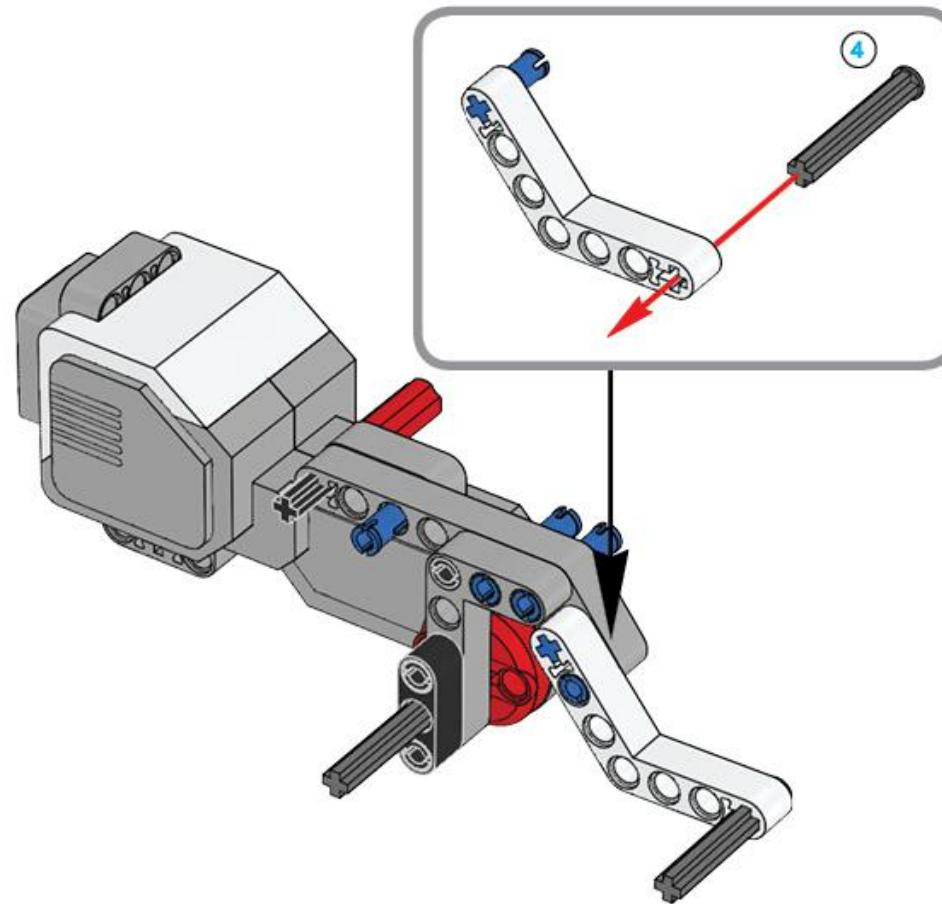
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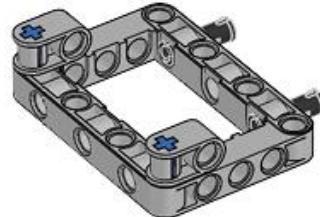




8

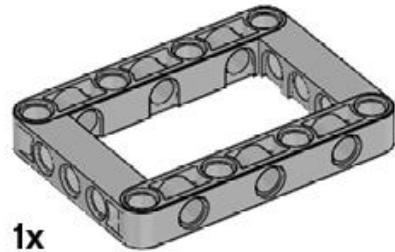
These pieces will  
be grey in the  
Home Edition



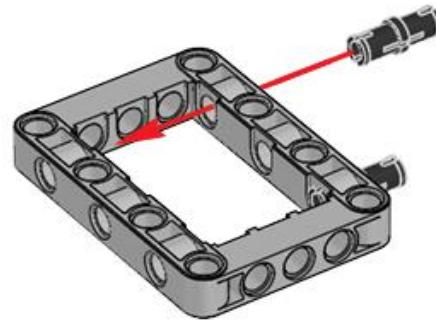


2x

1x



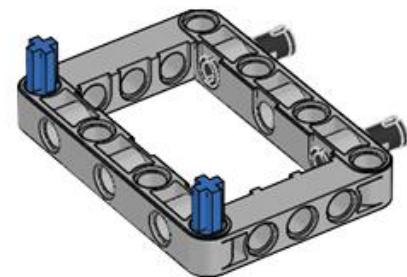
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2x

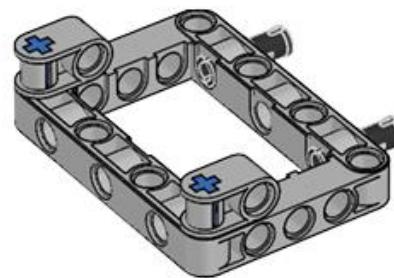
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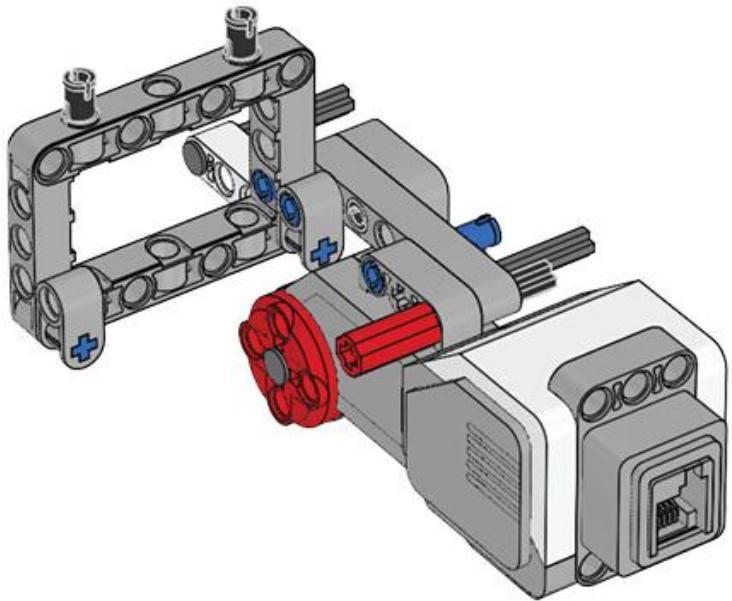


These pieces will  
be red in the  
Home Edition

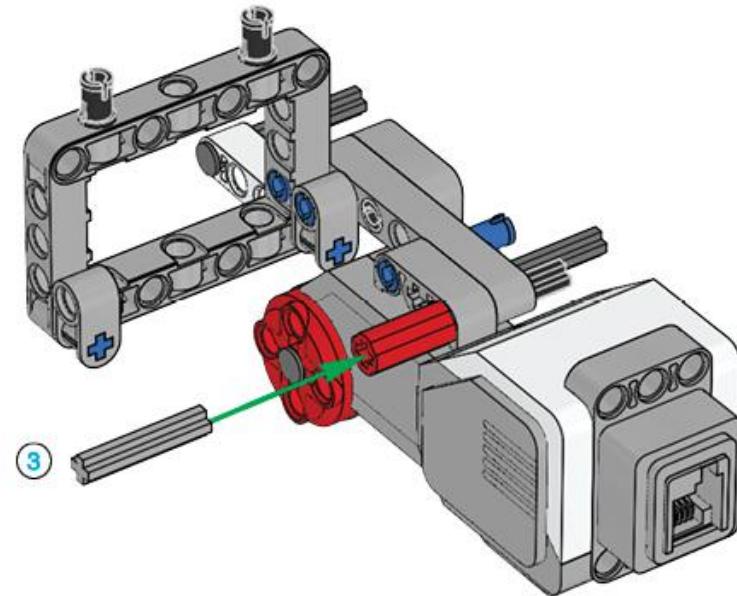
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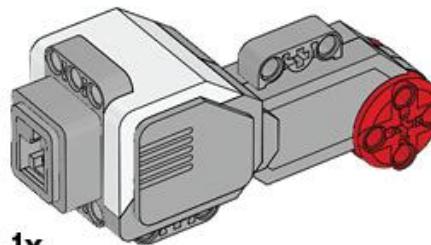
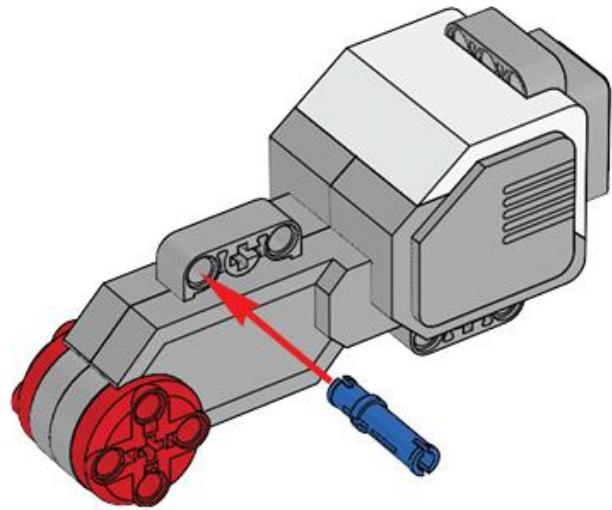
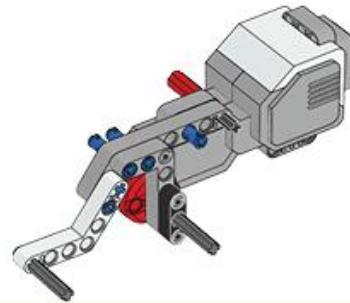


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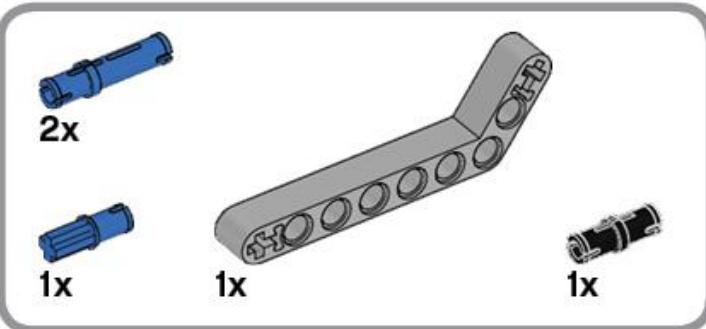
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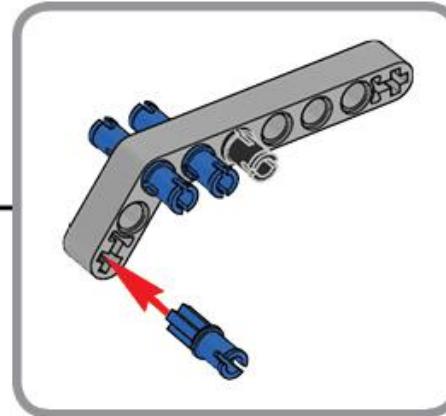
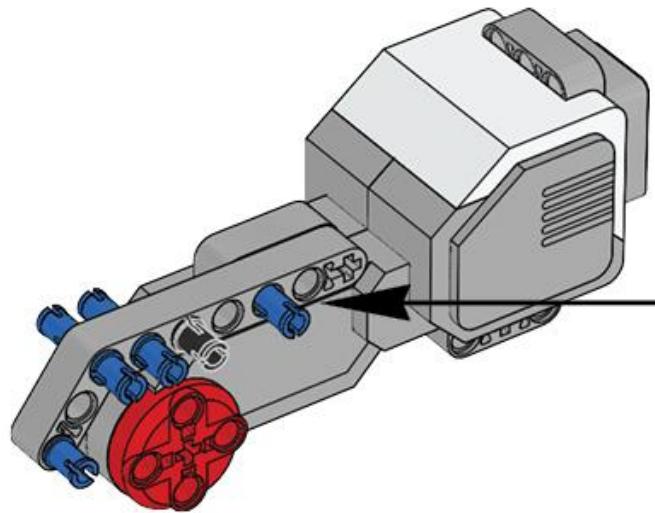


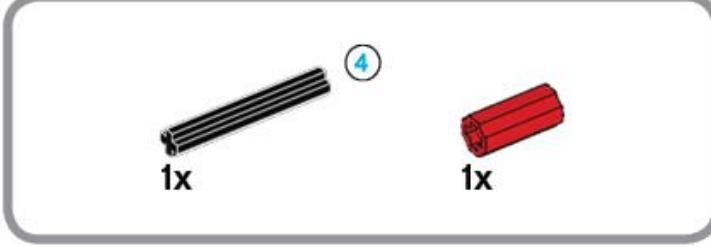
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**14**

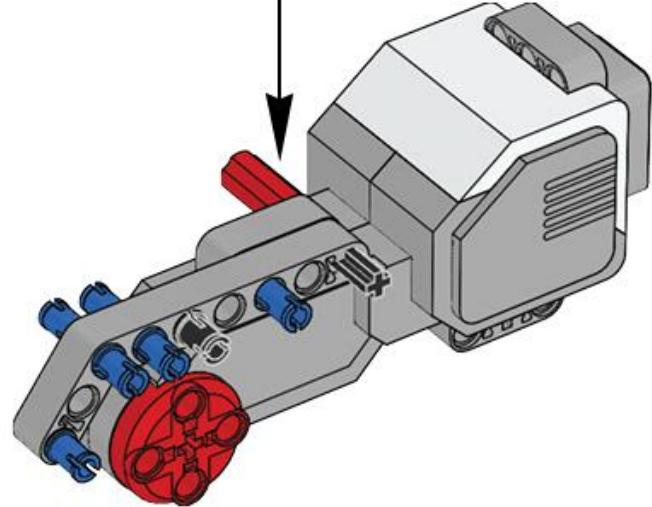
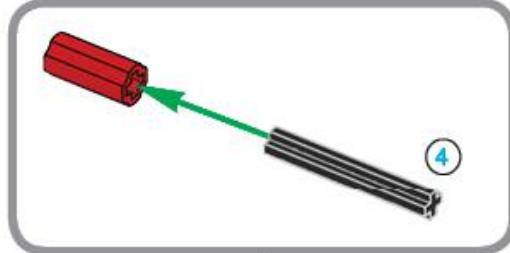


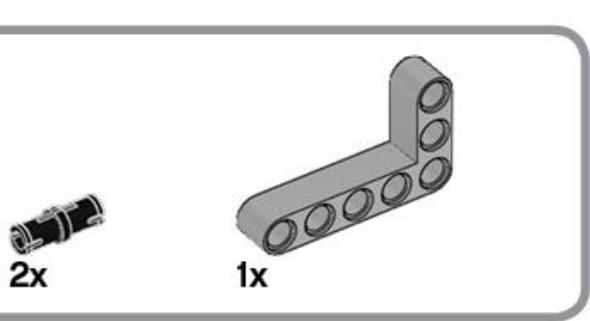
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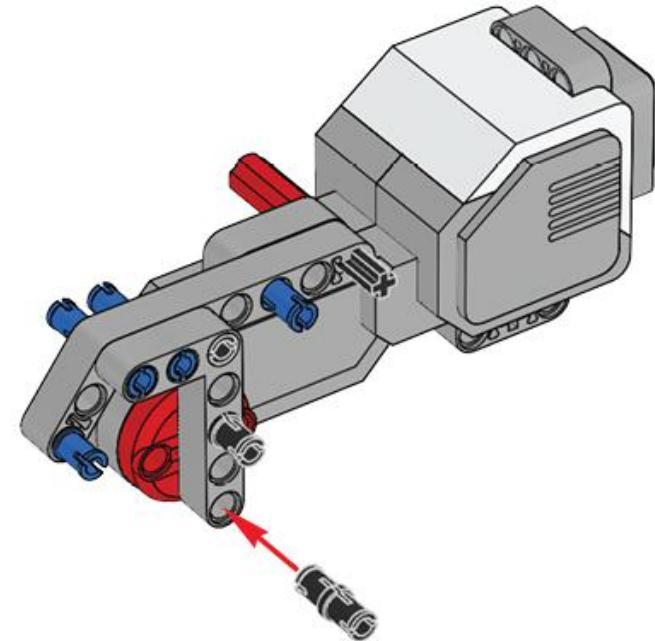


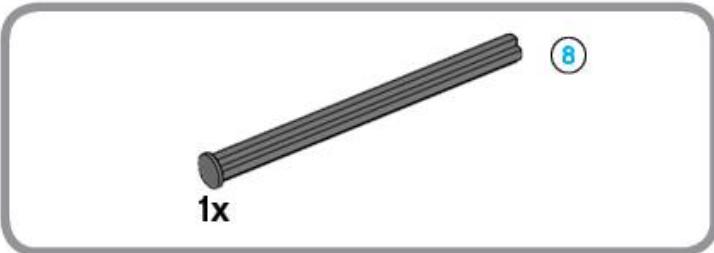
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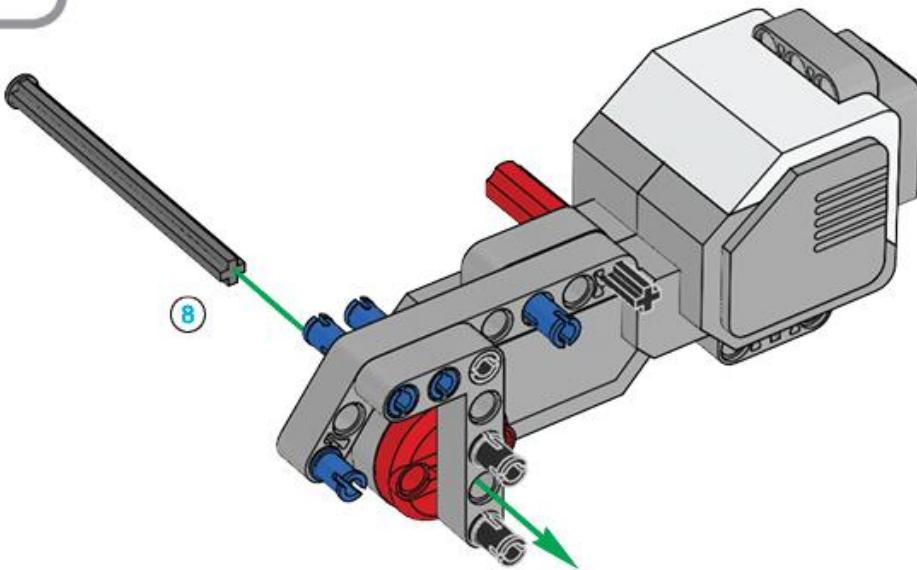


17





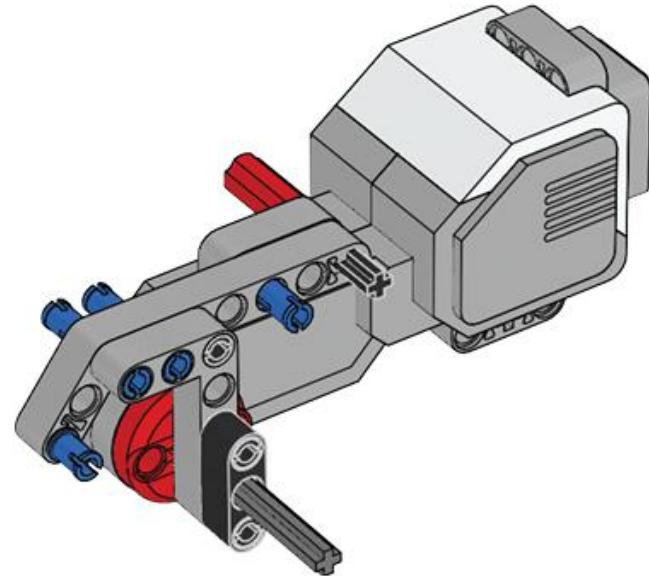
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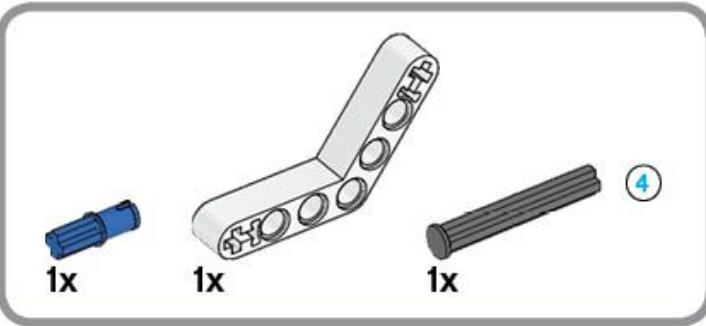




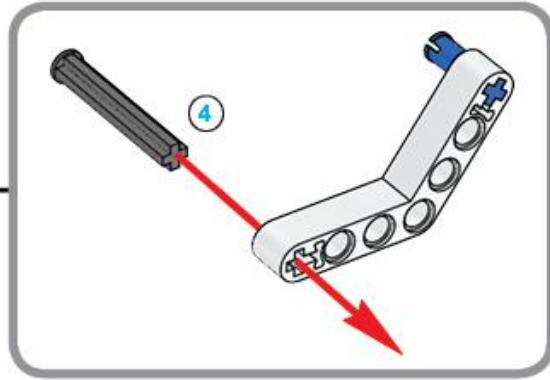
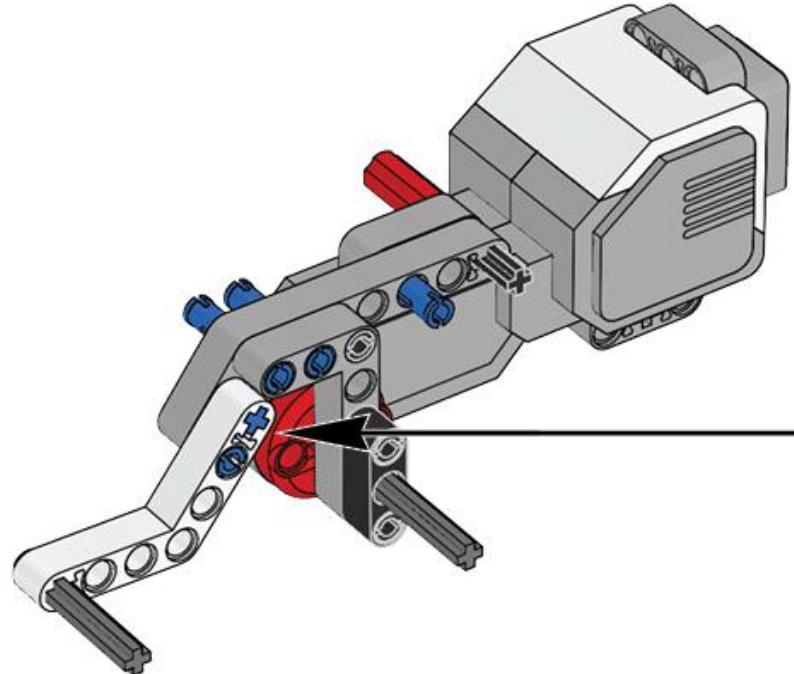
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19

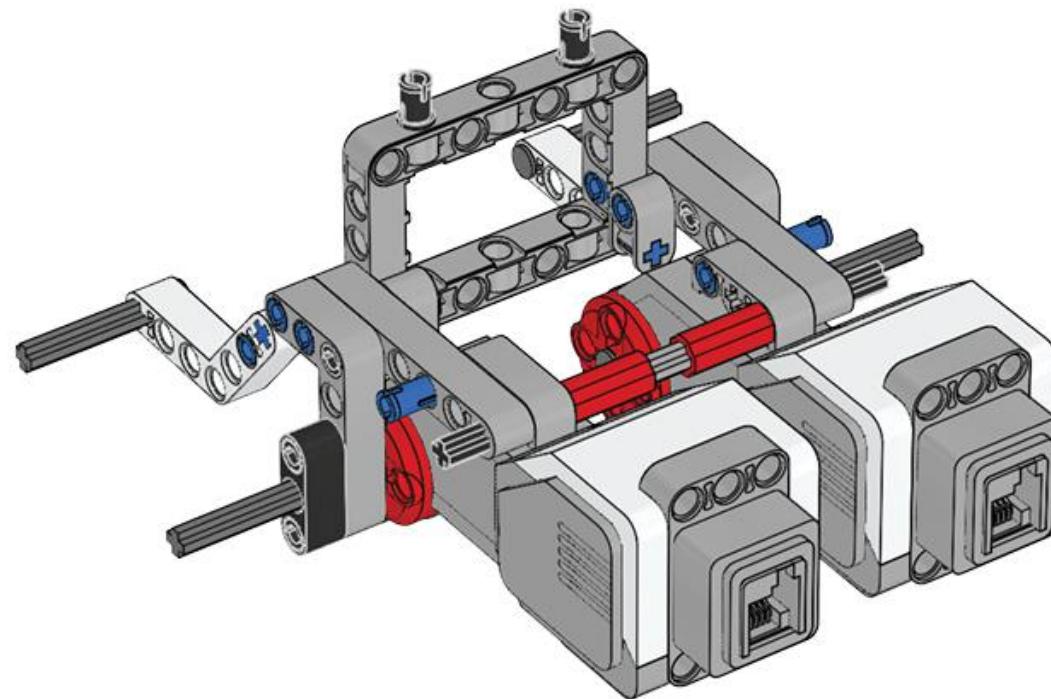


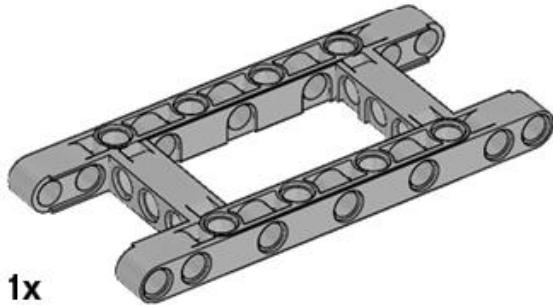


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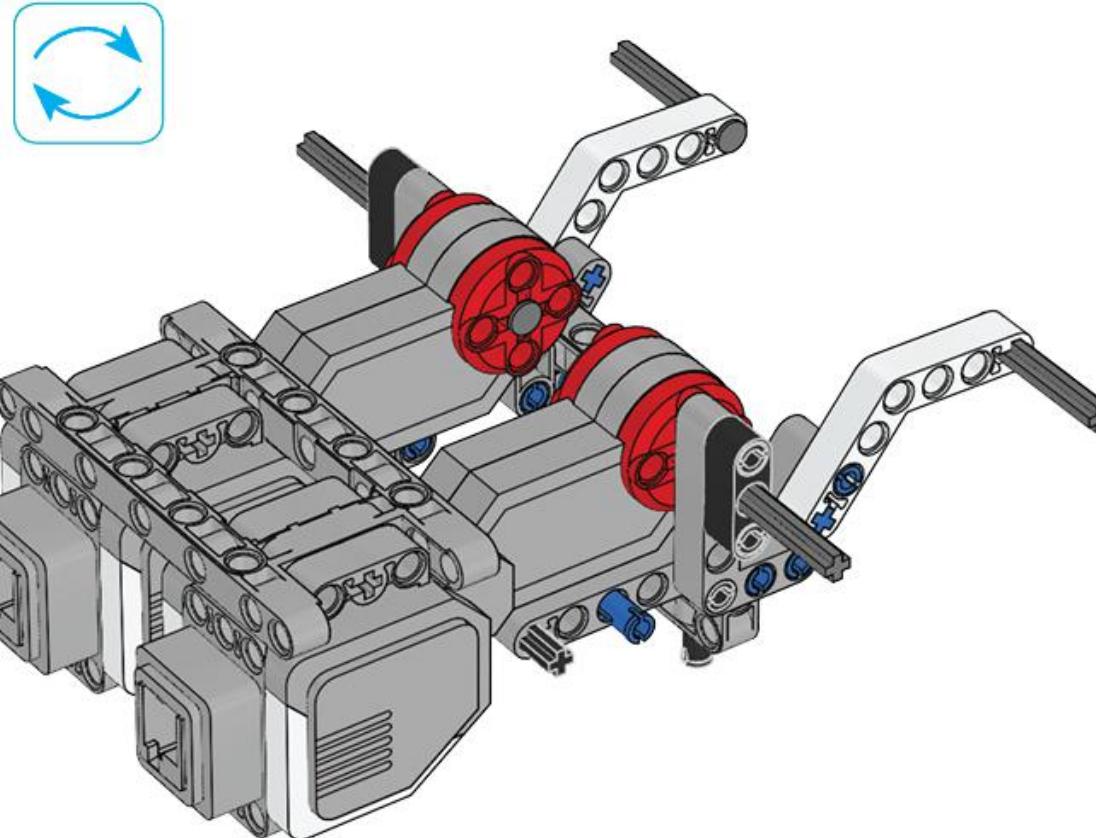
**21**





1x

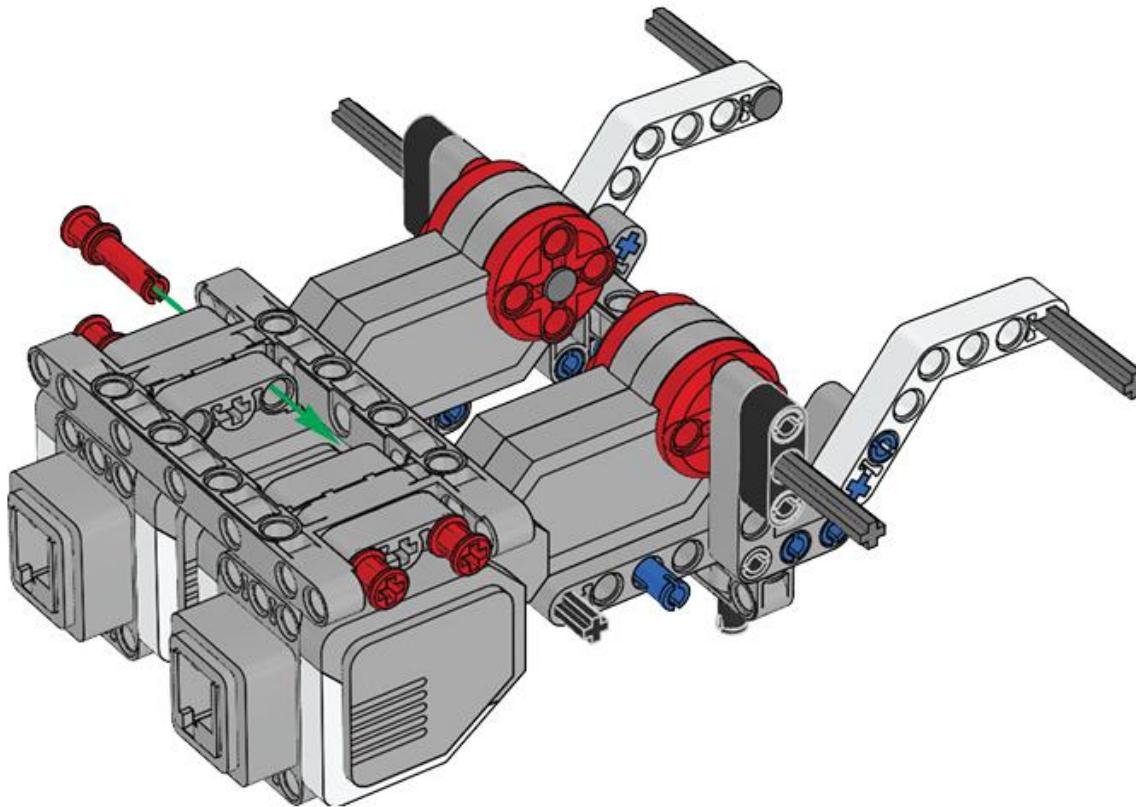
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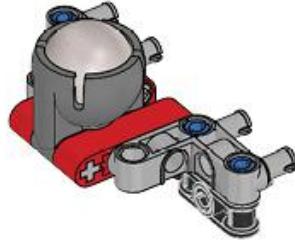


**23**



**4x**





The Home Edition does not have some of the pieces. Instead, attach the small wheels to the bottom of the robot in any way, similar to the picture on the next page.



1x

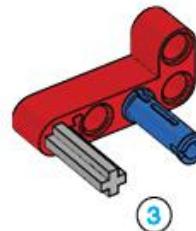


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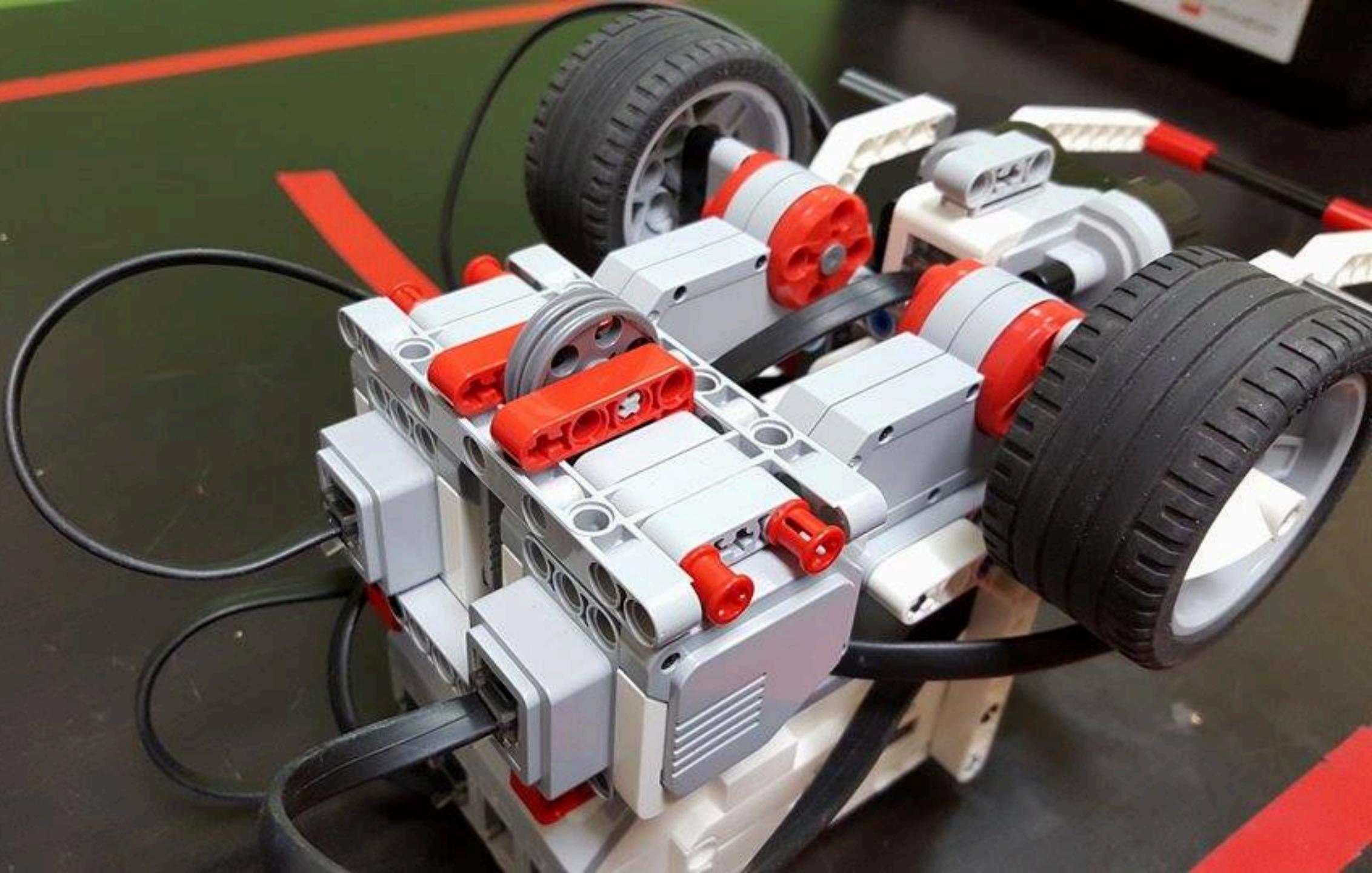
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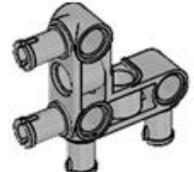


1x



**24**

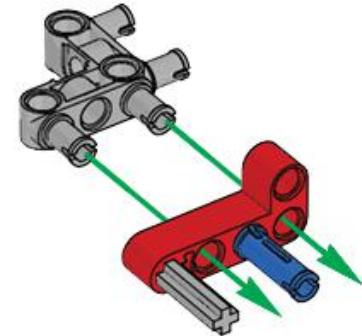




1x

Home Edition: skip  
this step

25

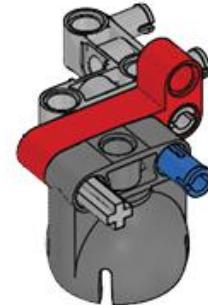




1x

Home Edition: skip  
this step

26

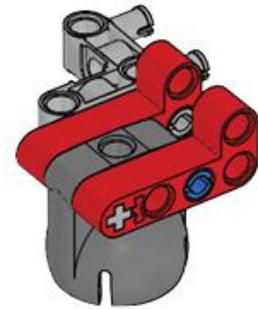




1x

Home Edition: skip  
this step

27

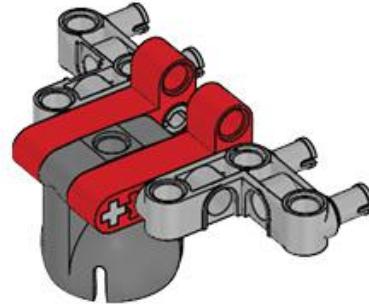




1x

Home Edition: skip  
this step

28





2x



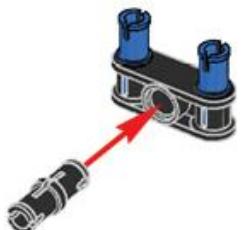
2x



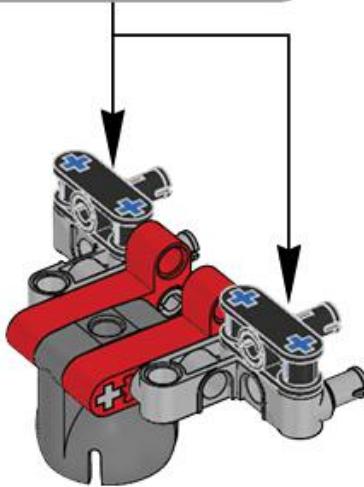
4x

# 29

Home Edition: skip  
this step



2x

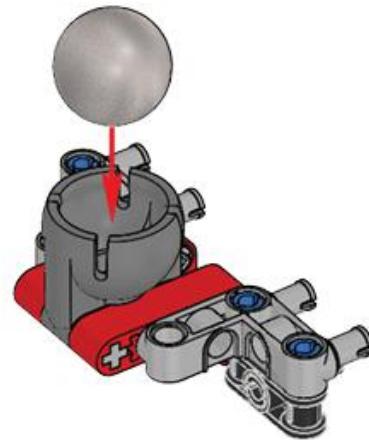




1x

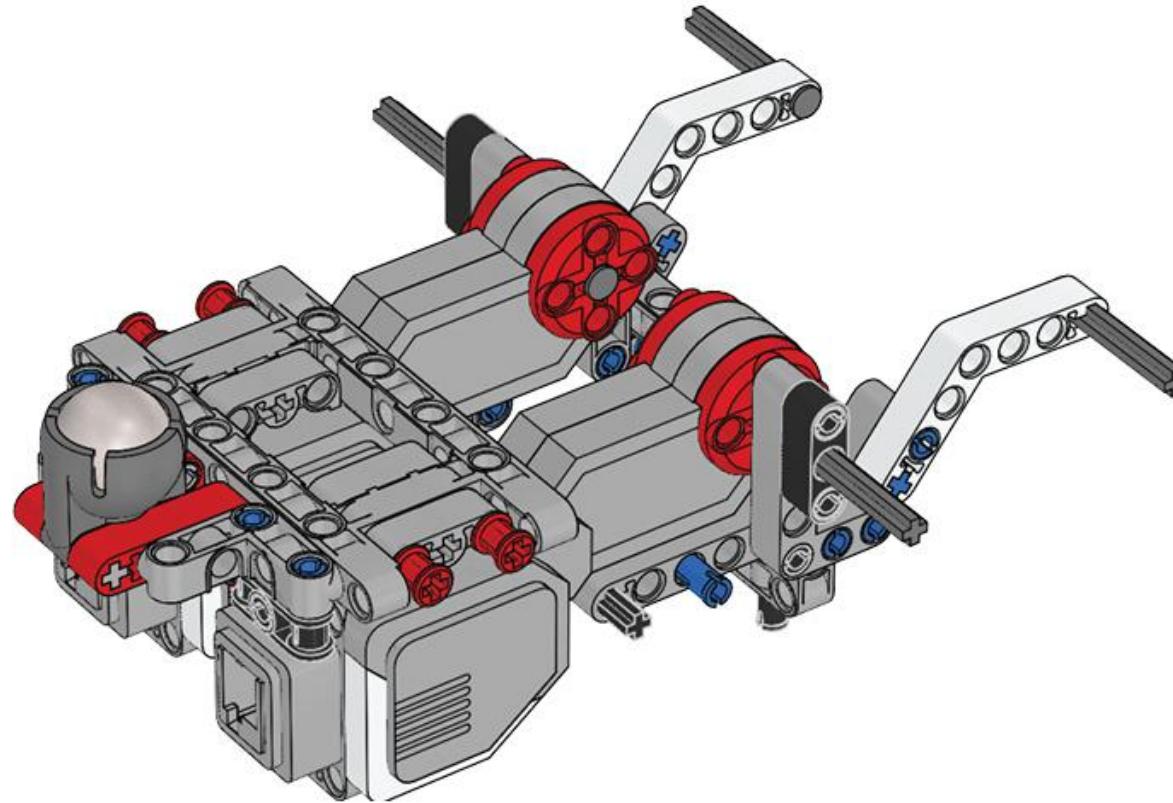
**30**

Home Edition: skip  
this step

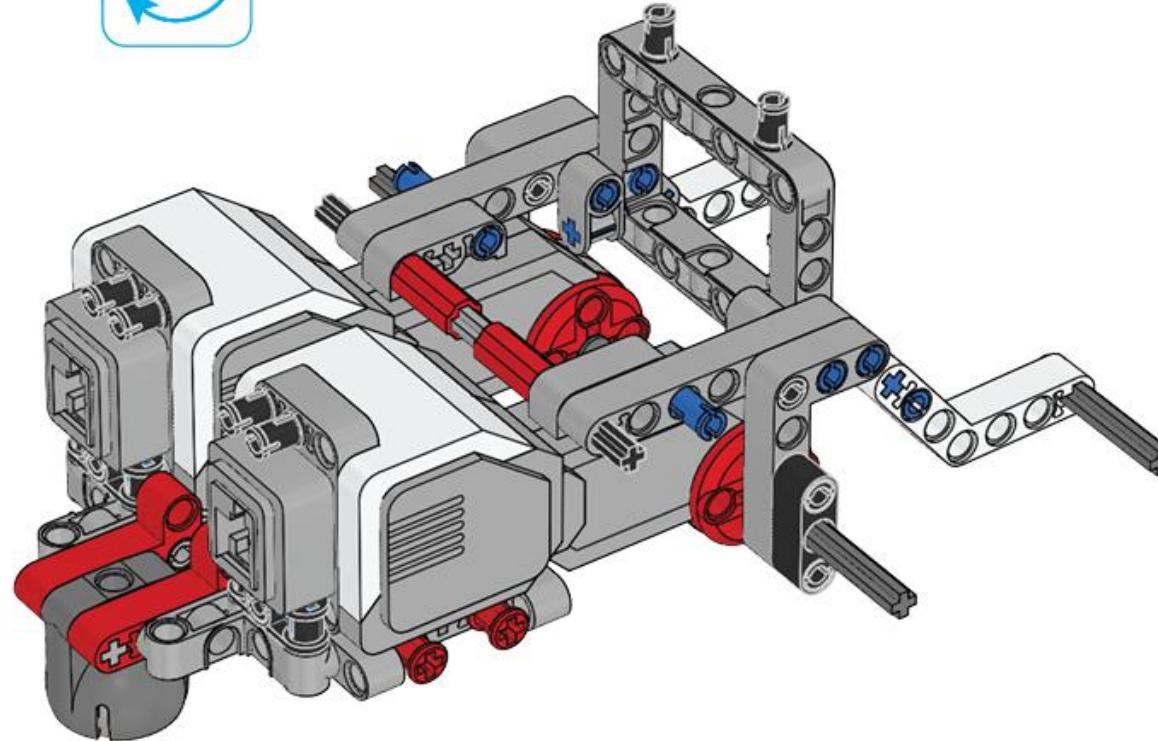


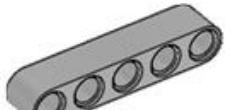
**31**

Home Edition: skip  
this step



**32**





1x

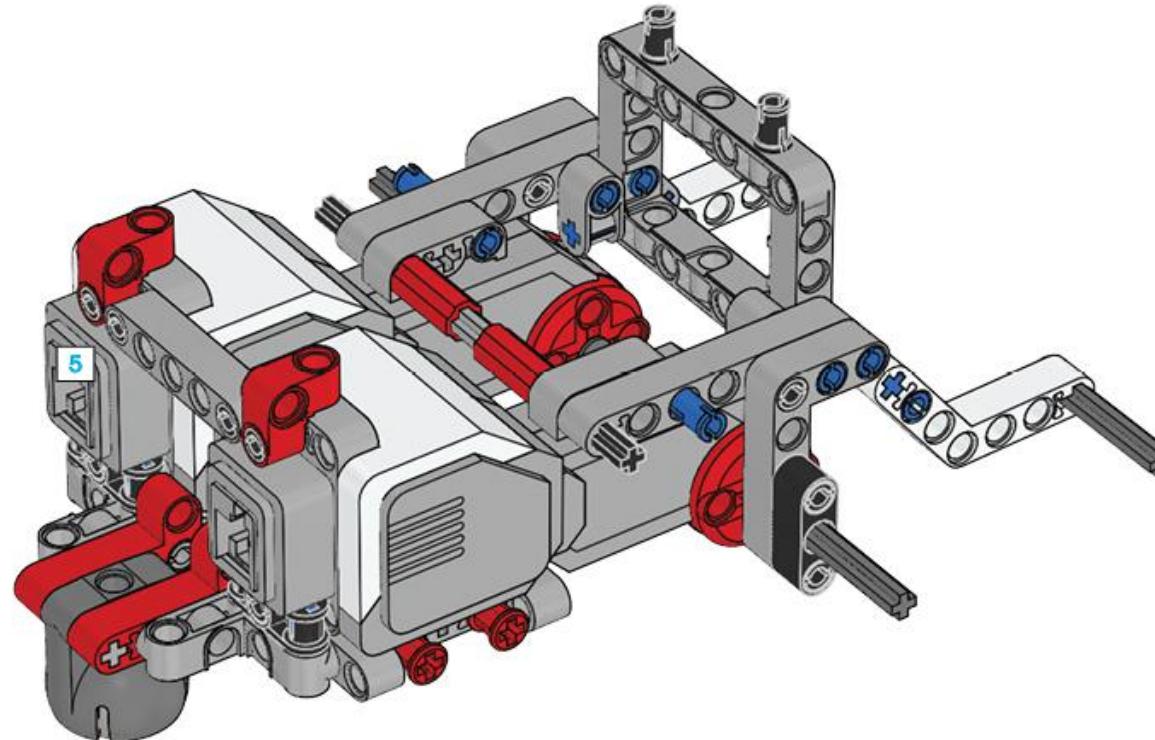
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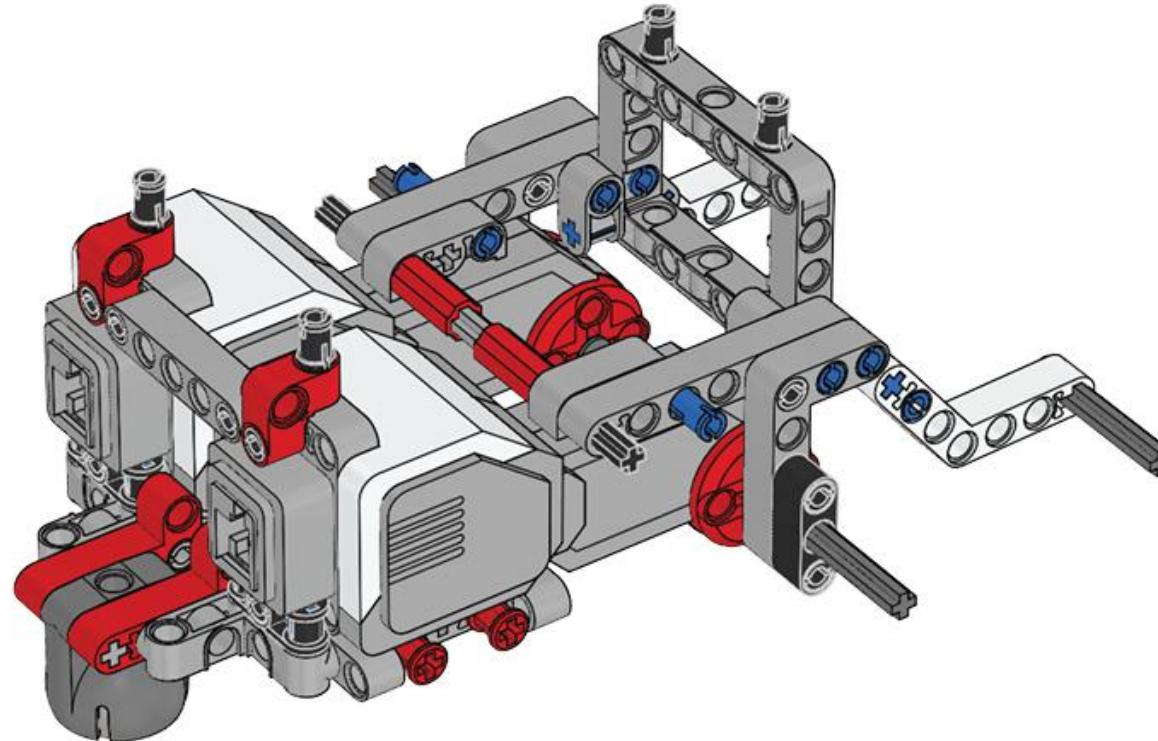
2x

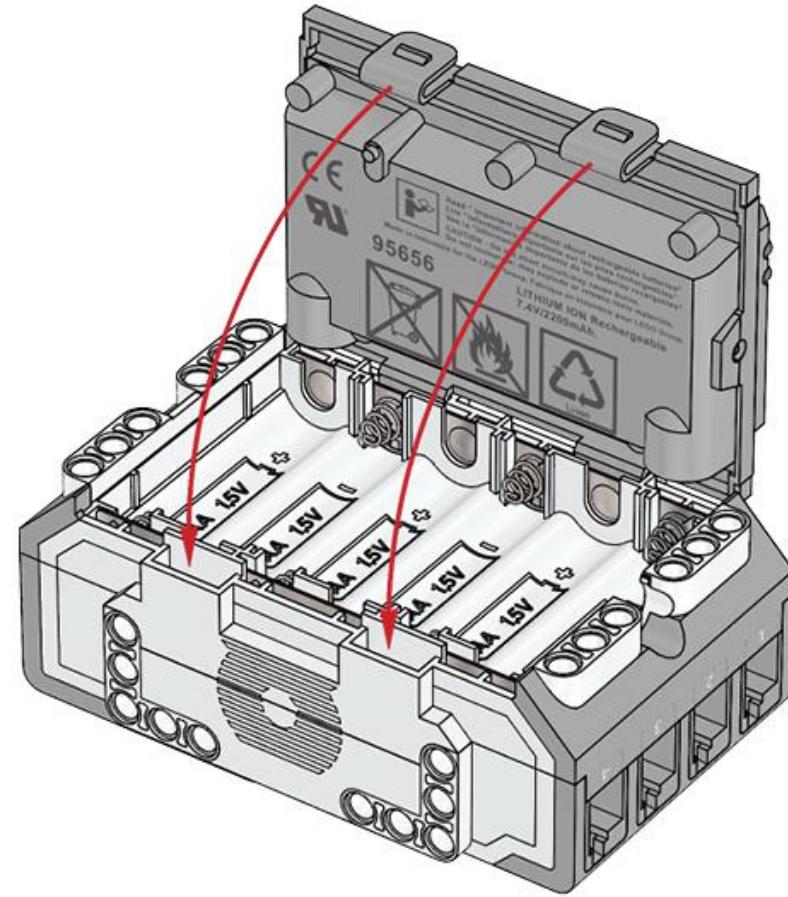
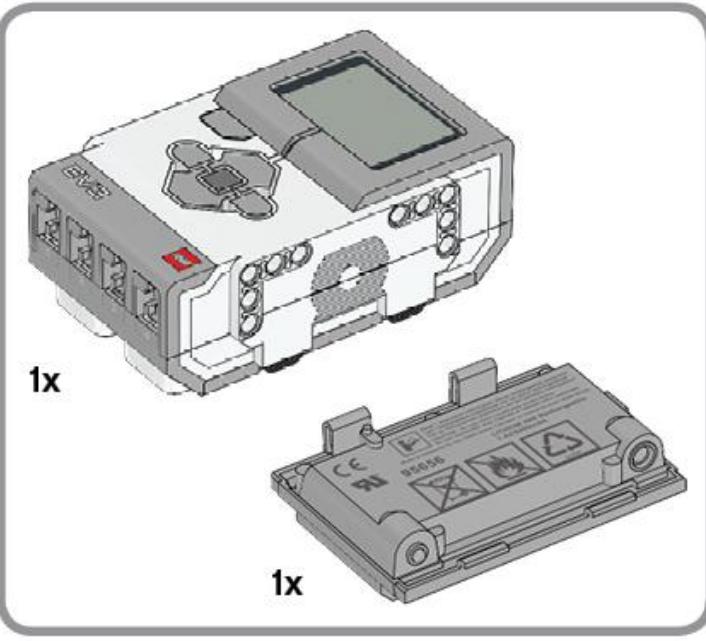
33

The Home Edition does not include these red pieces. just secure the Brick to the motors in any other way.



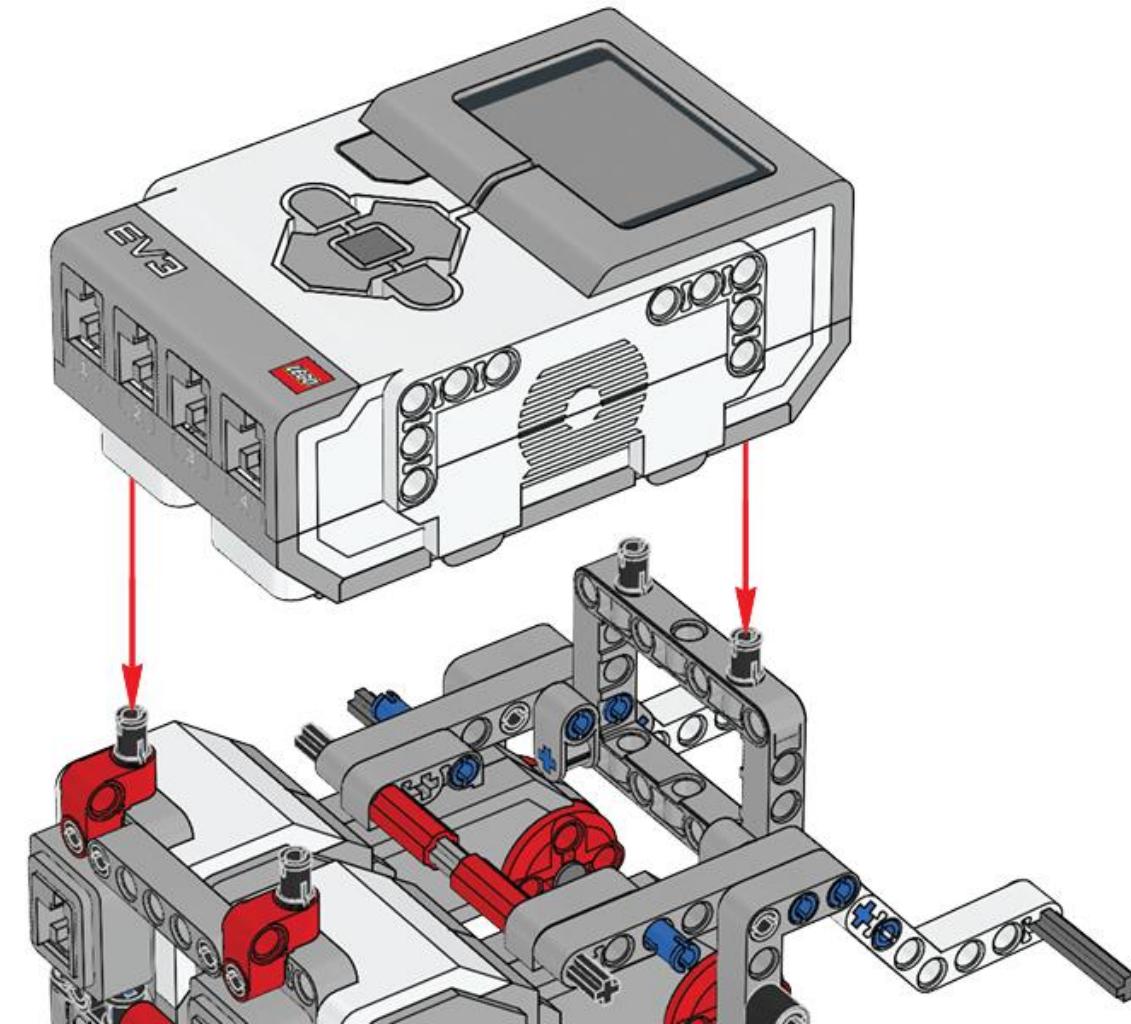
**34**

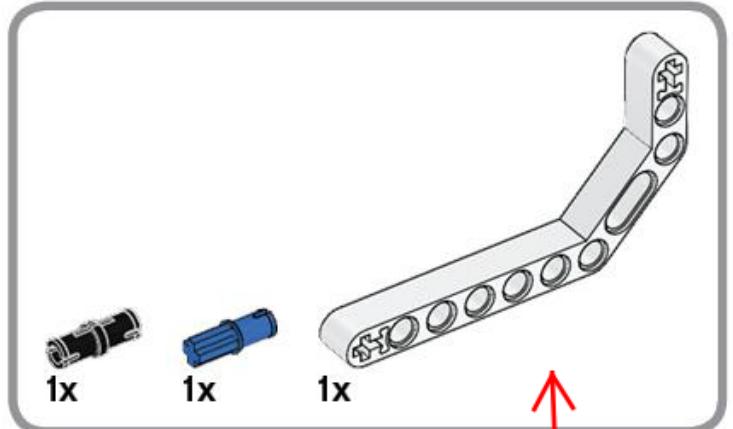




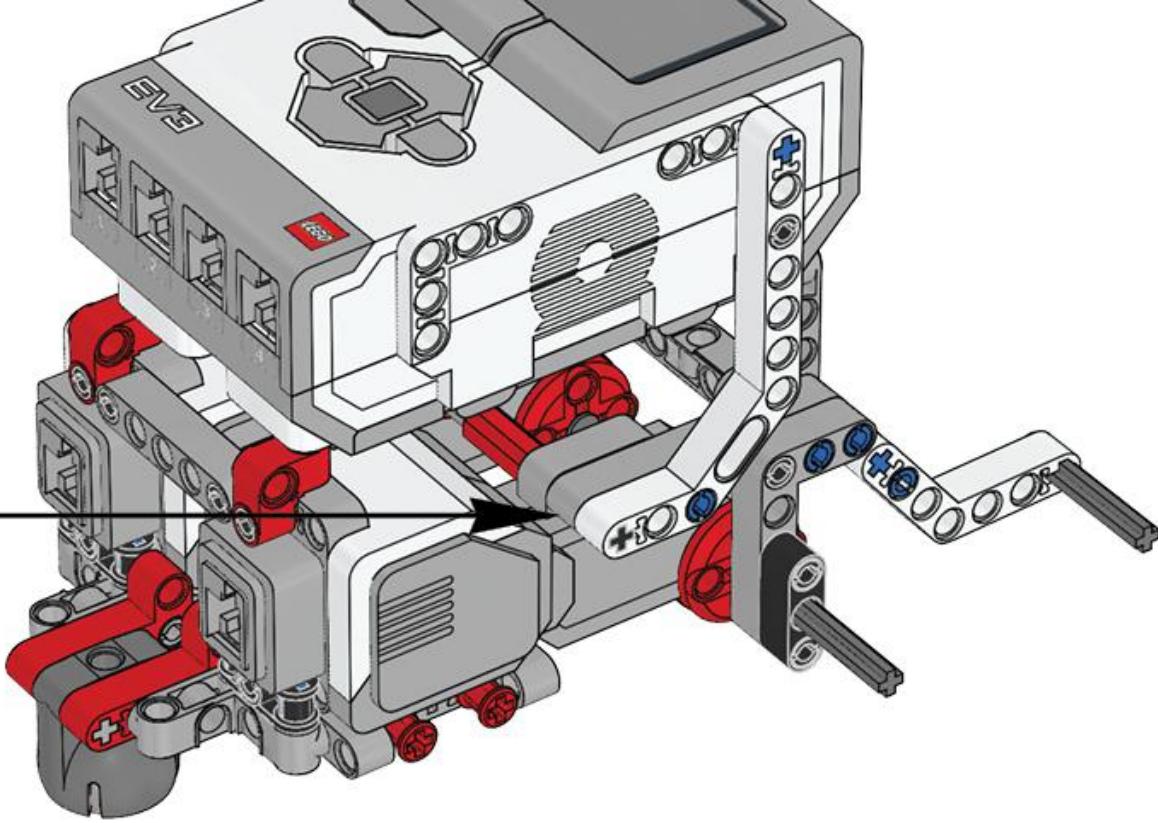
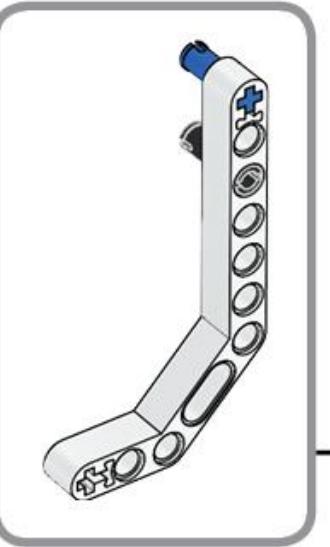
35

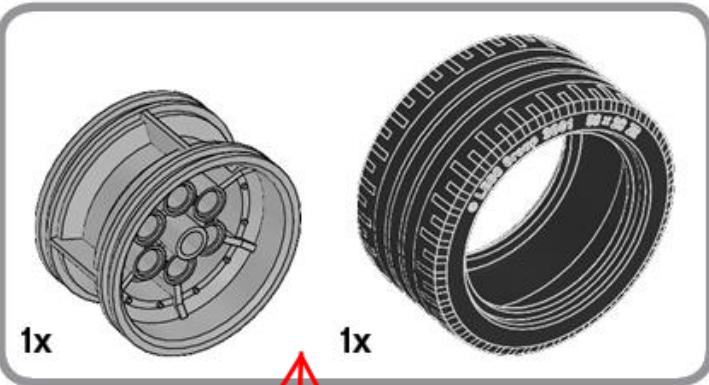
36





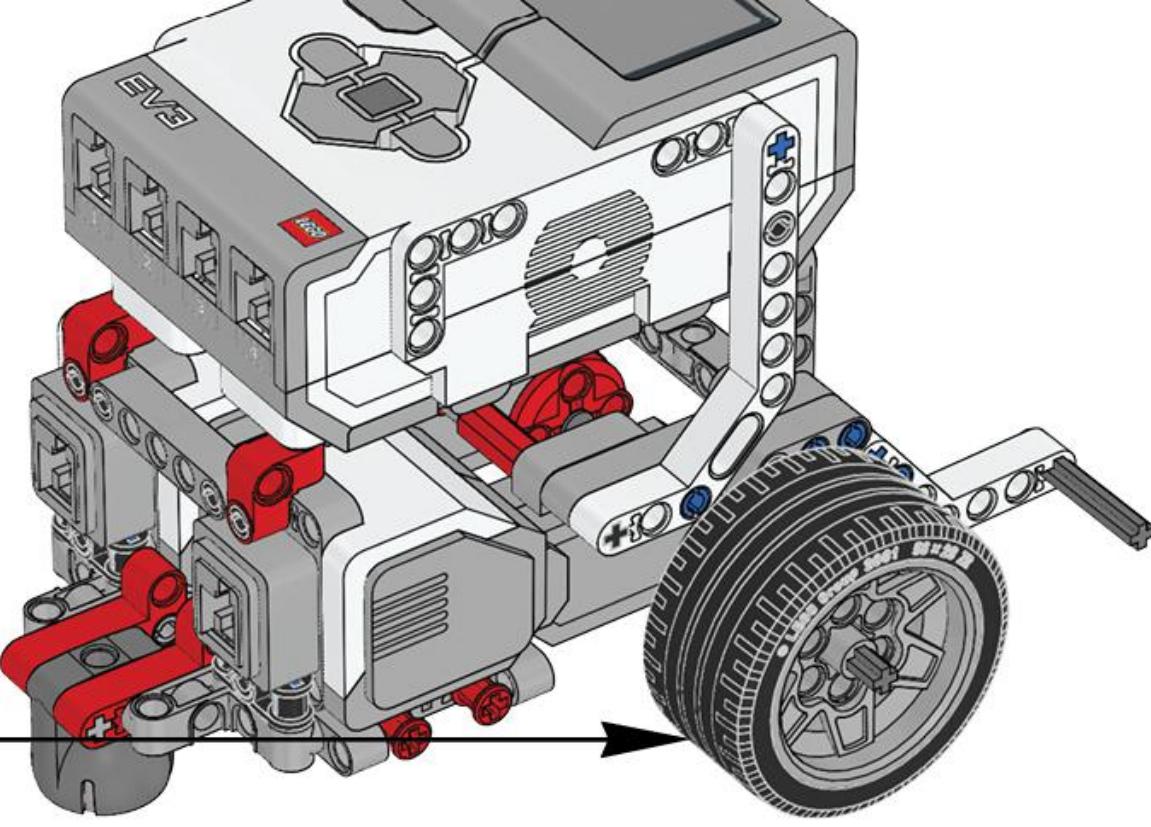
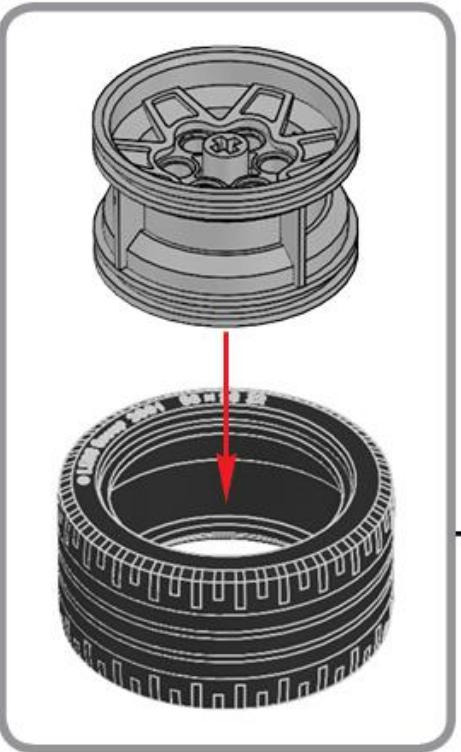
These pieces will  
be grey in the  
Home Edition



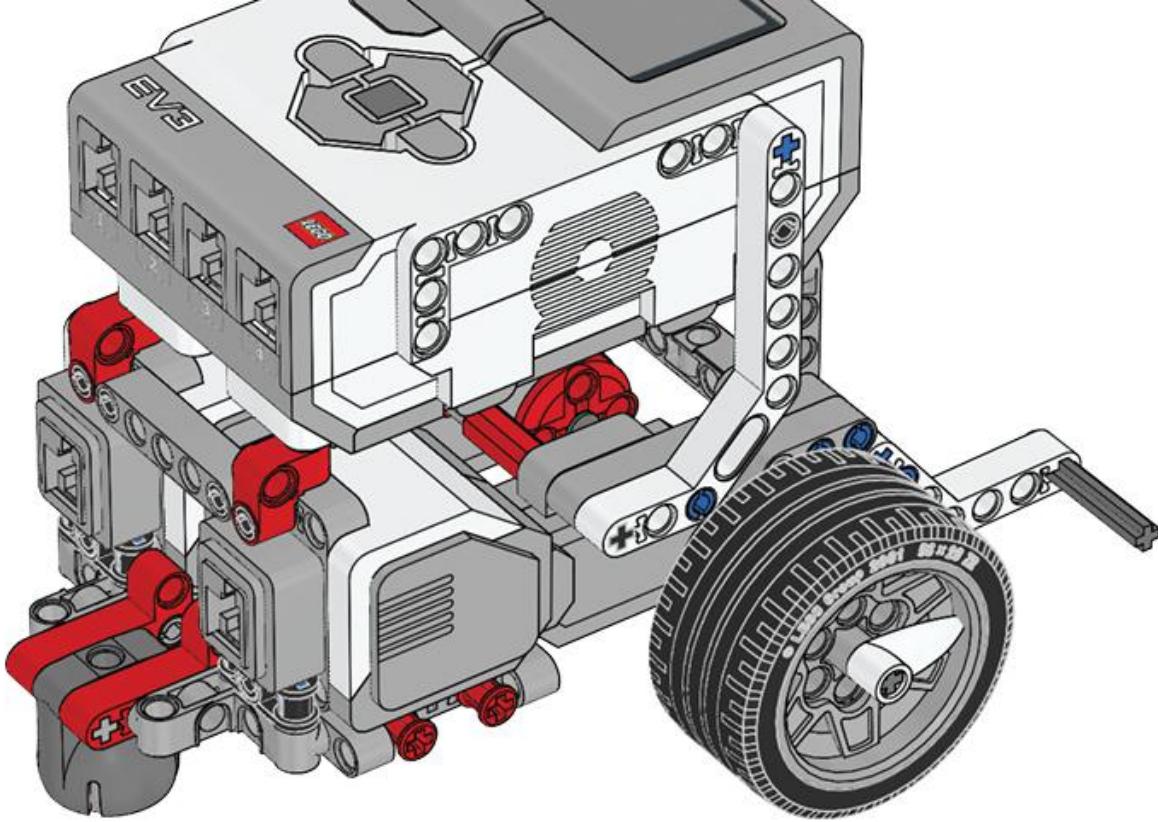
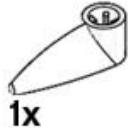


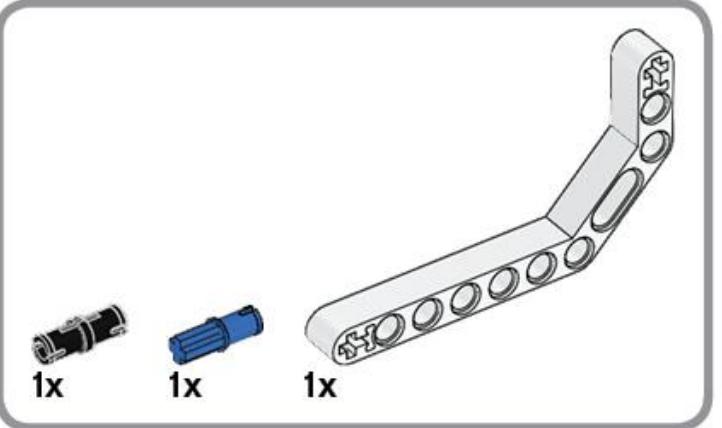
**38**

The Home Edition  
has different  
wheels, but they  
can still be used

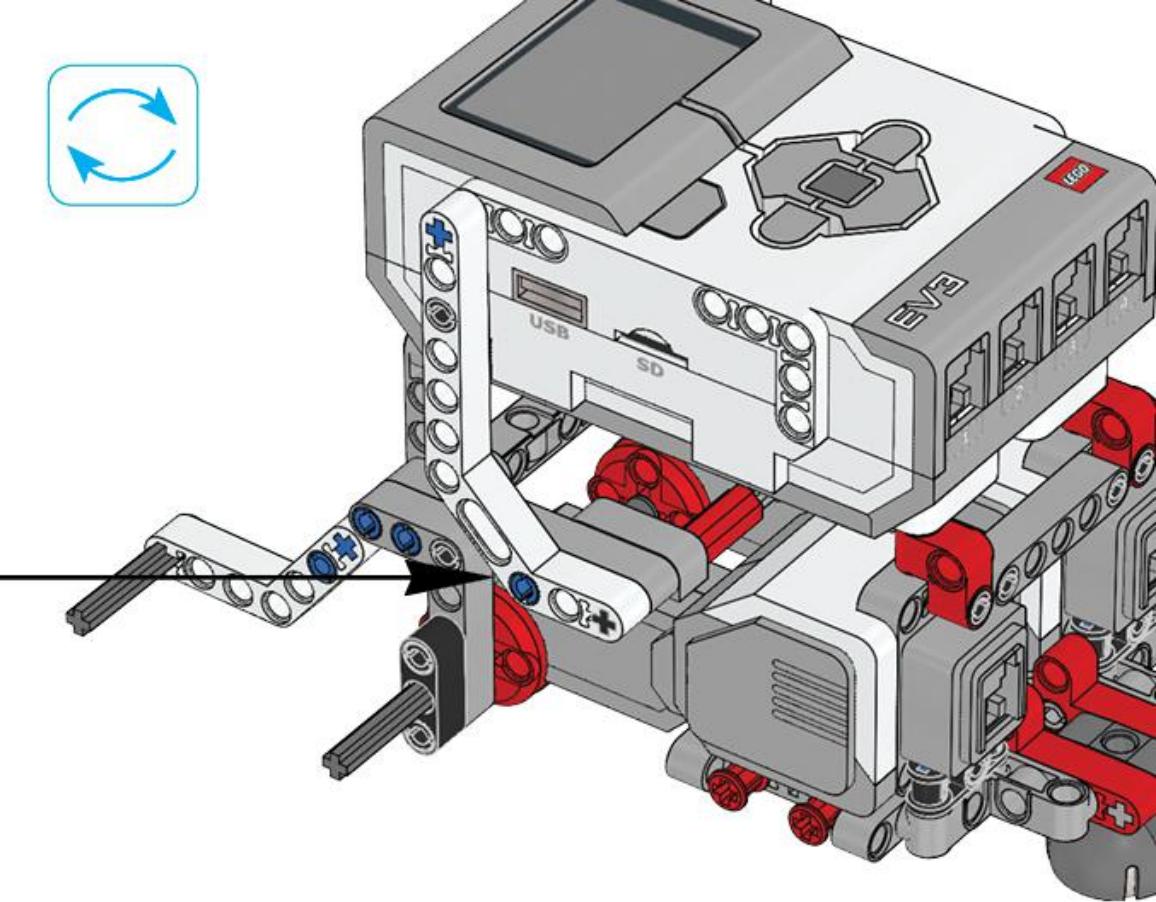
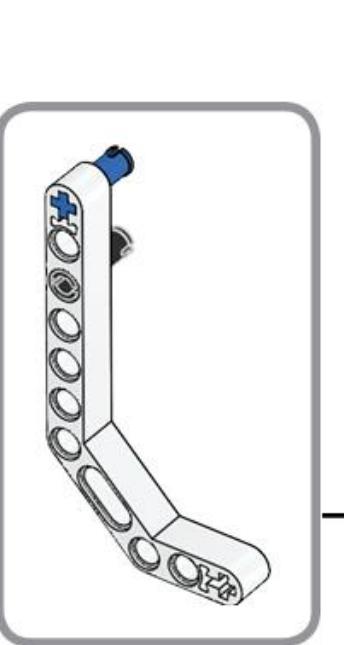


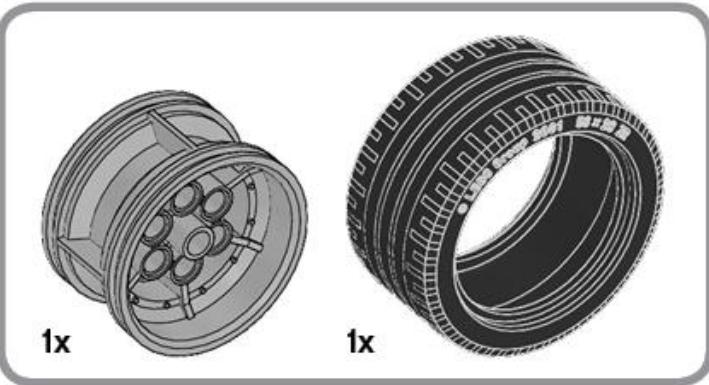
**39**



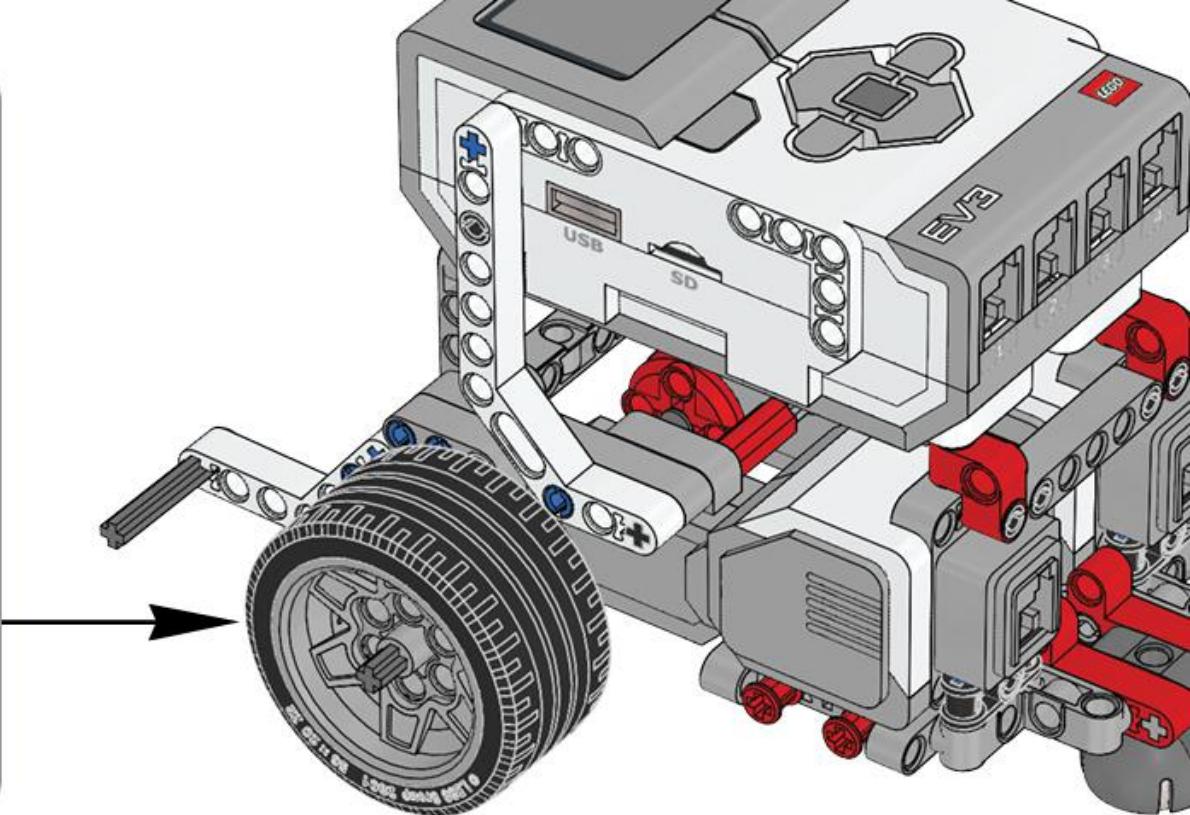
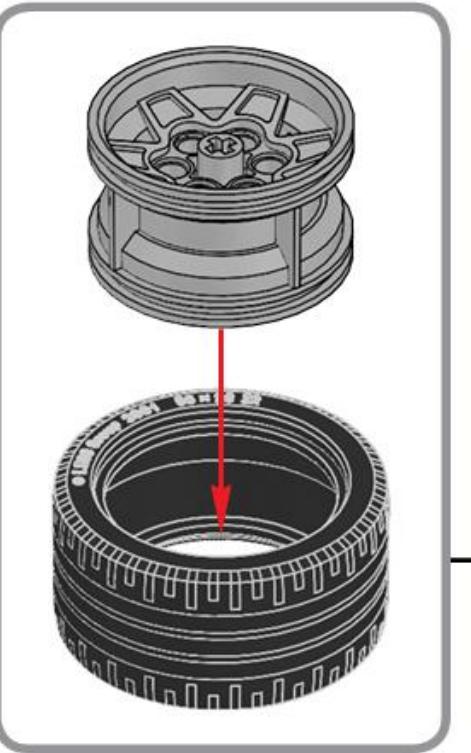


**40**

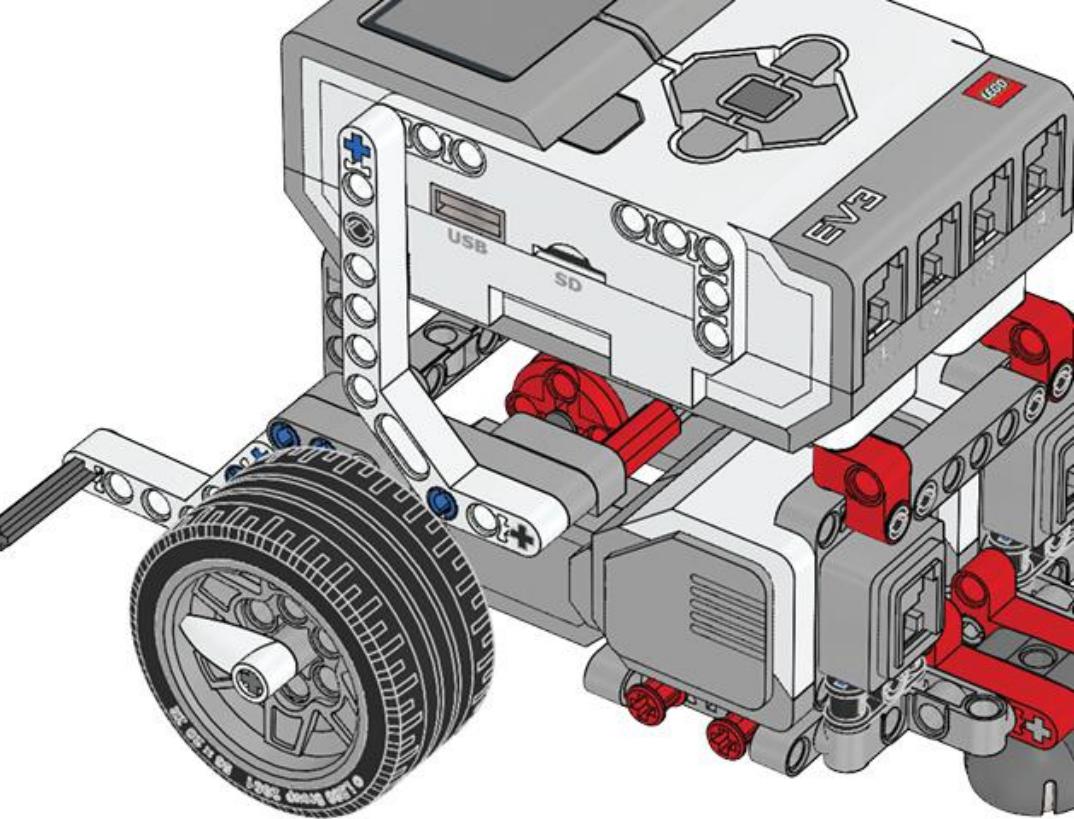
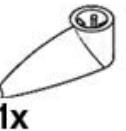




**41**

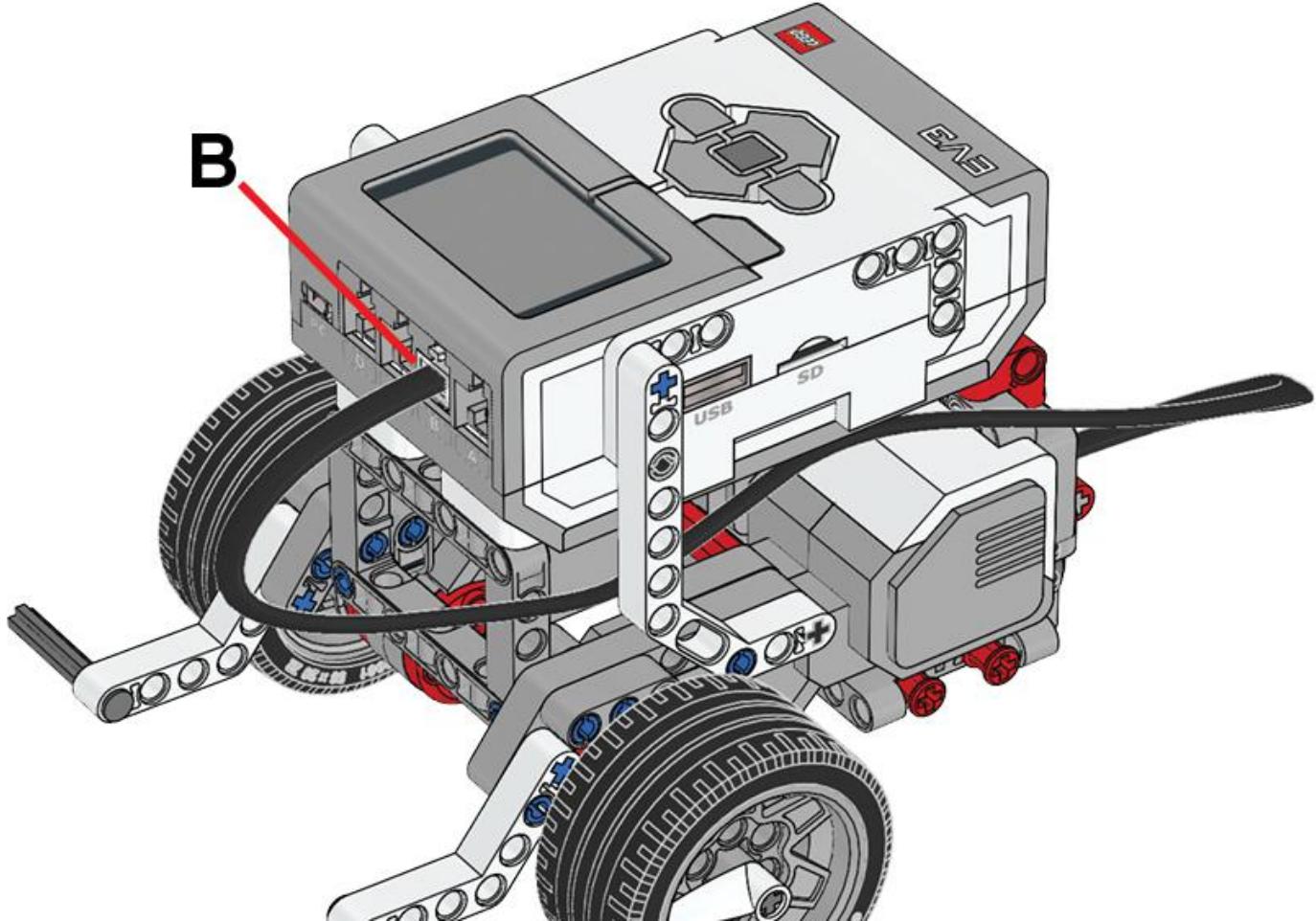


**42**





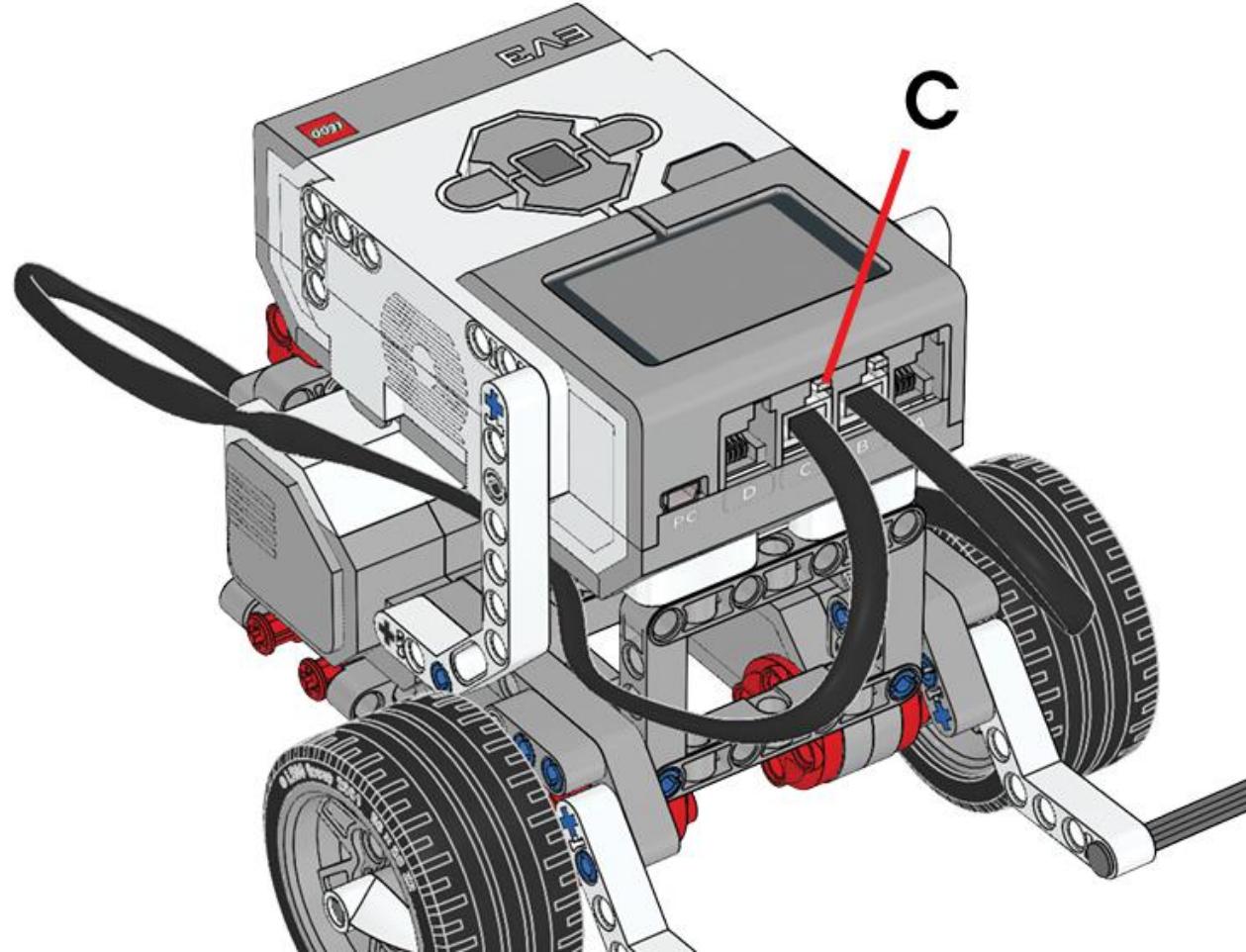
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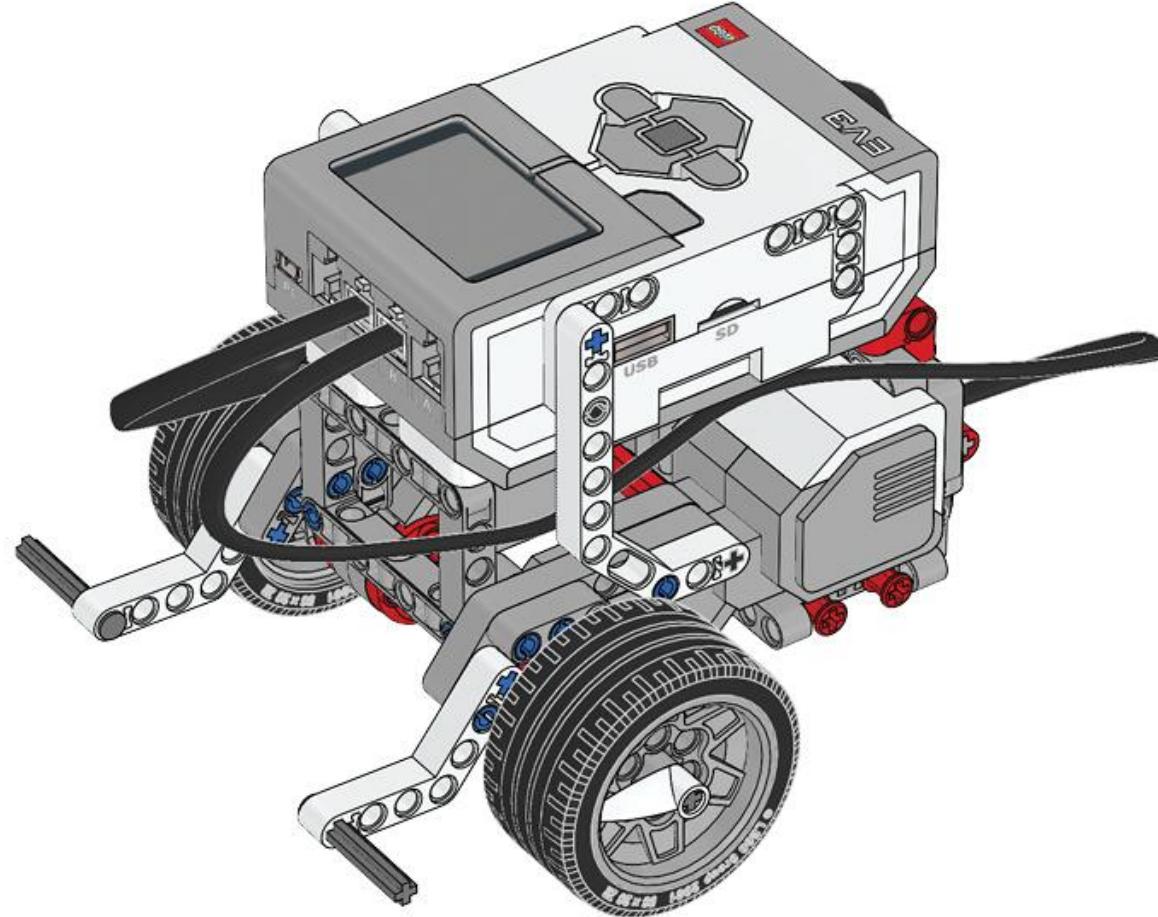


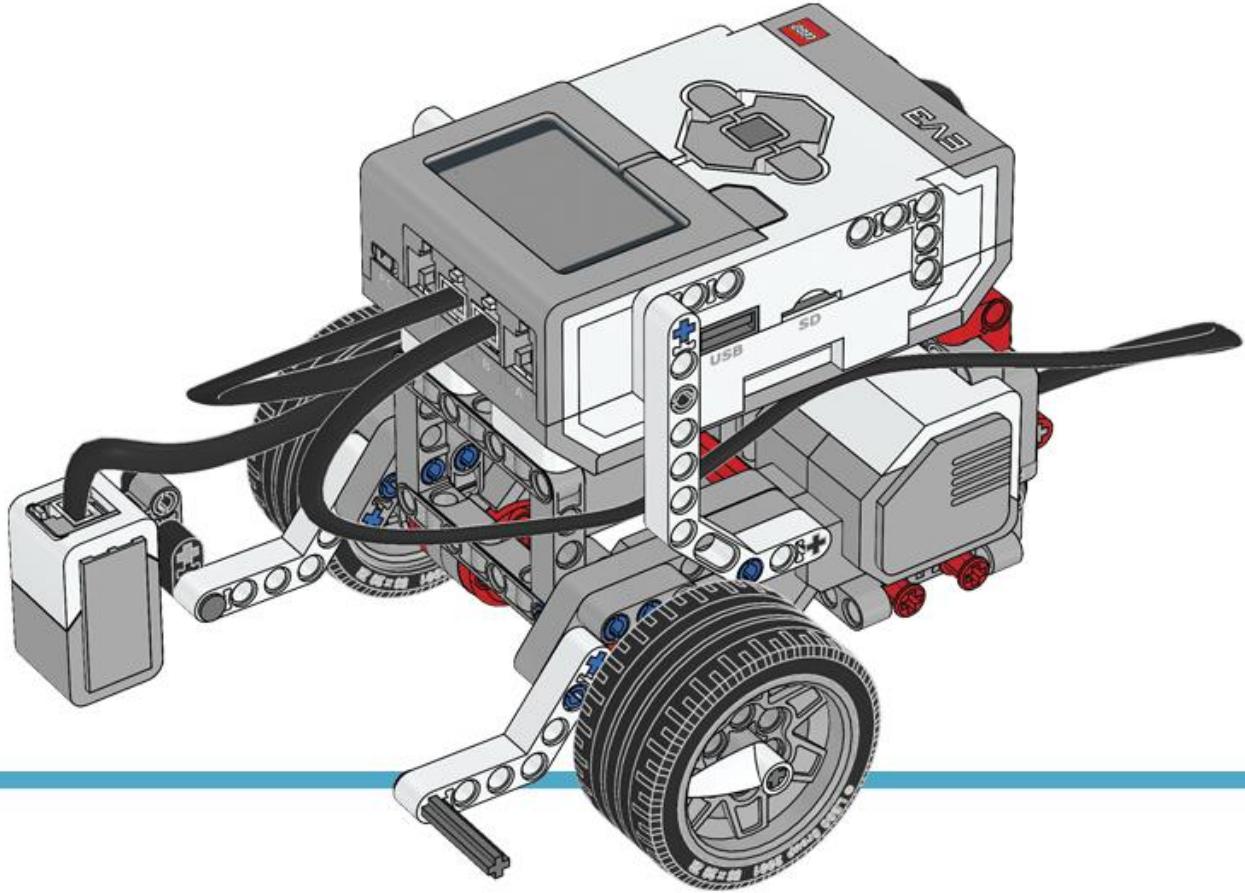
35 cm / 14 in.

44

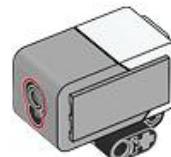


45





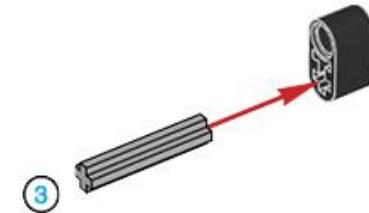
**LEGO** **MINDSTORMS**  
education **EV3**



For the Home Edition, use a small blue piece instead to attach the black piece to the side of the color sensor, with the circle in the black piece, and the + in the color sensor.



1





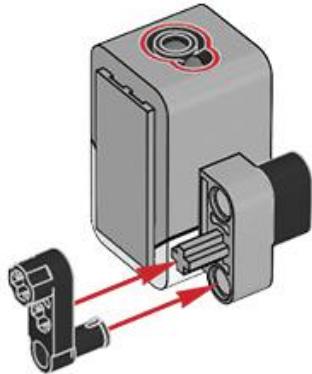
1x



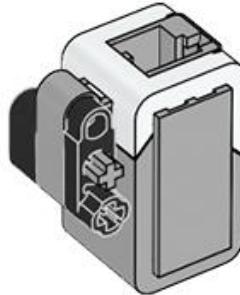
1x

The Home Edition  
does not include this  
piece, skip this step

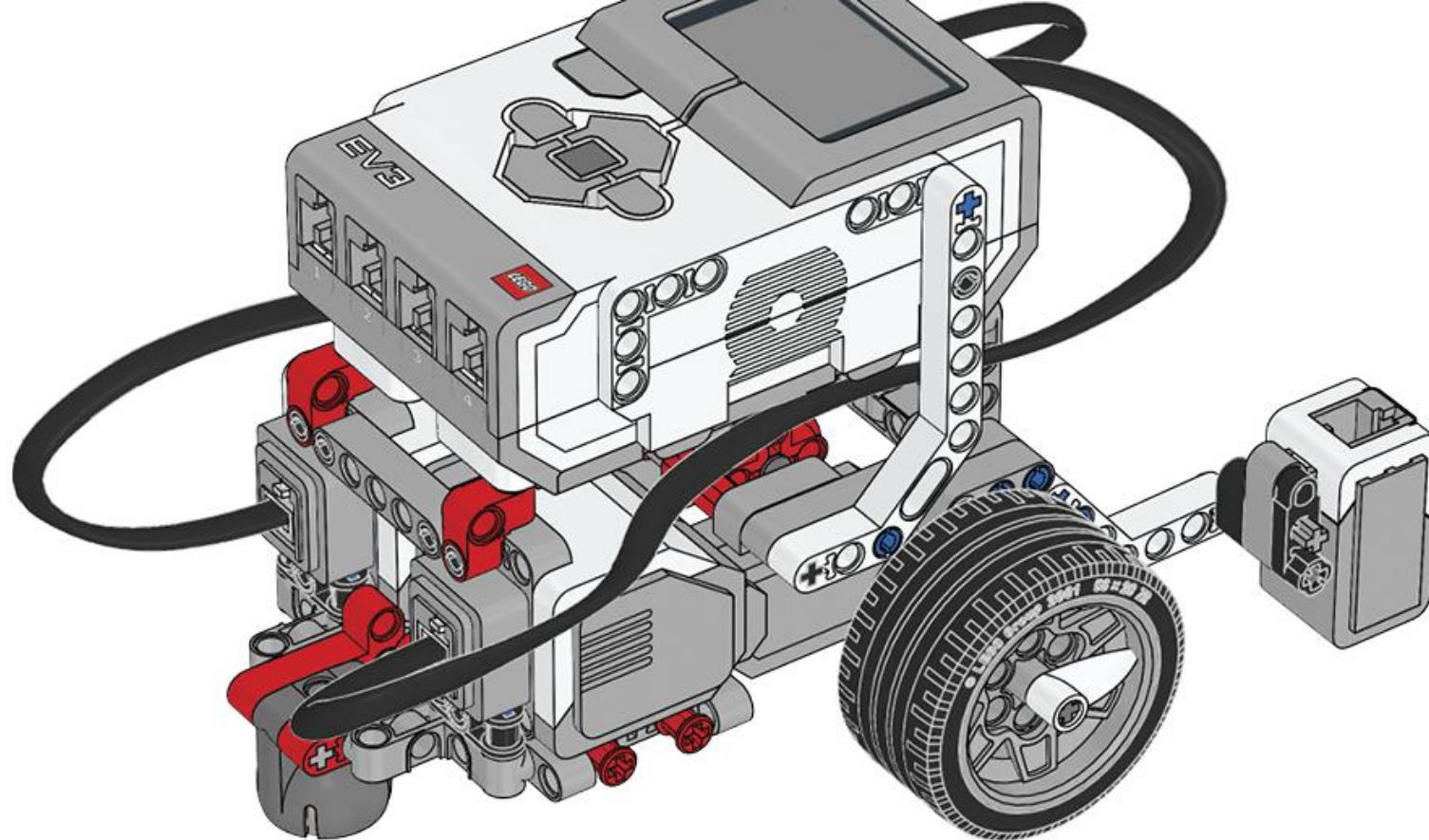
2



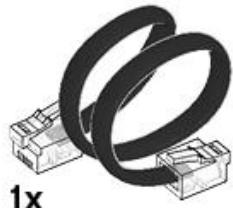
**3**



4

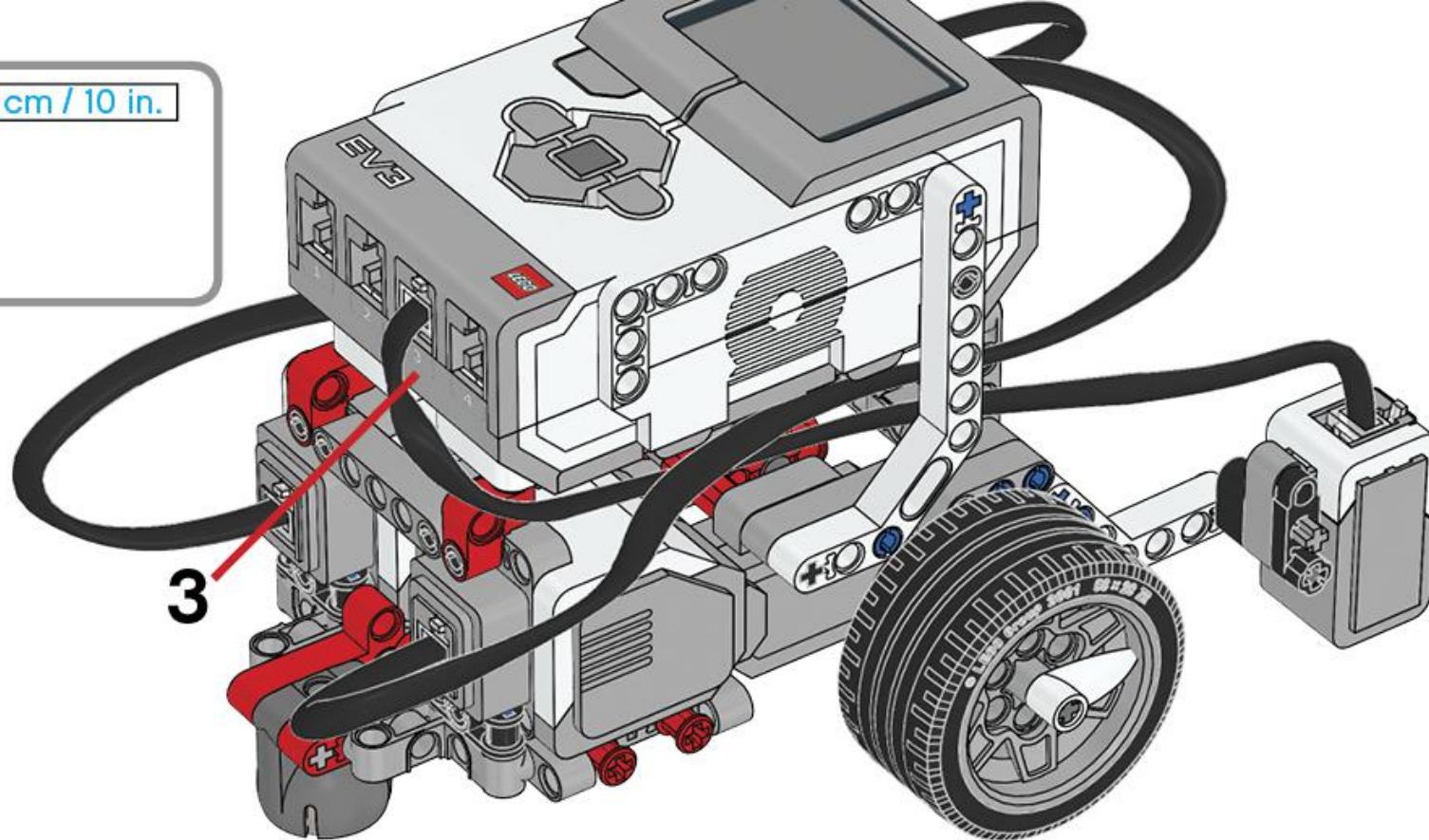


**5**

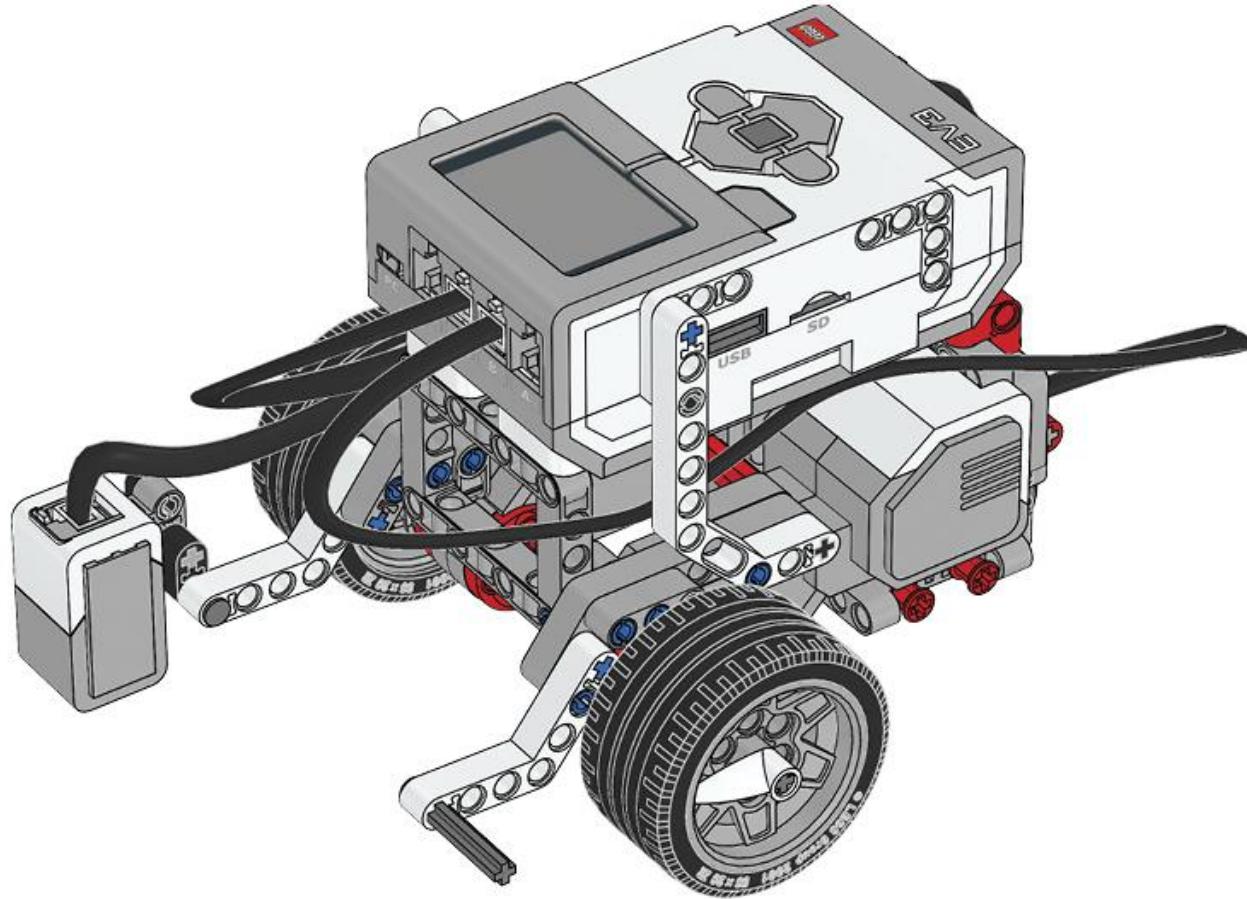


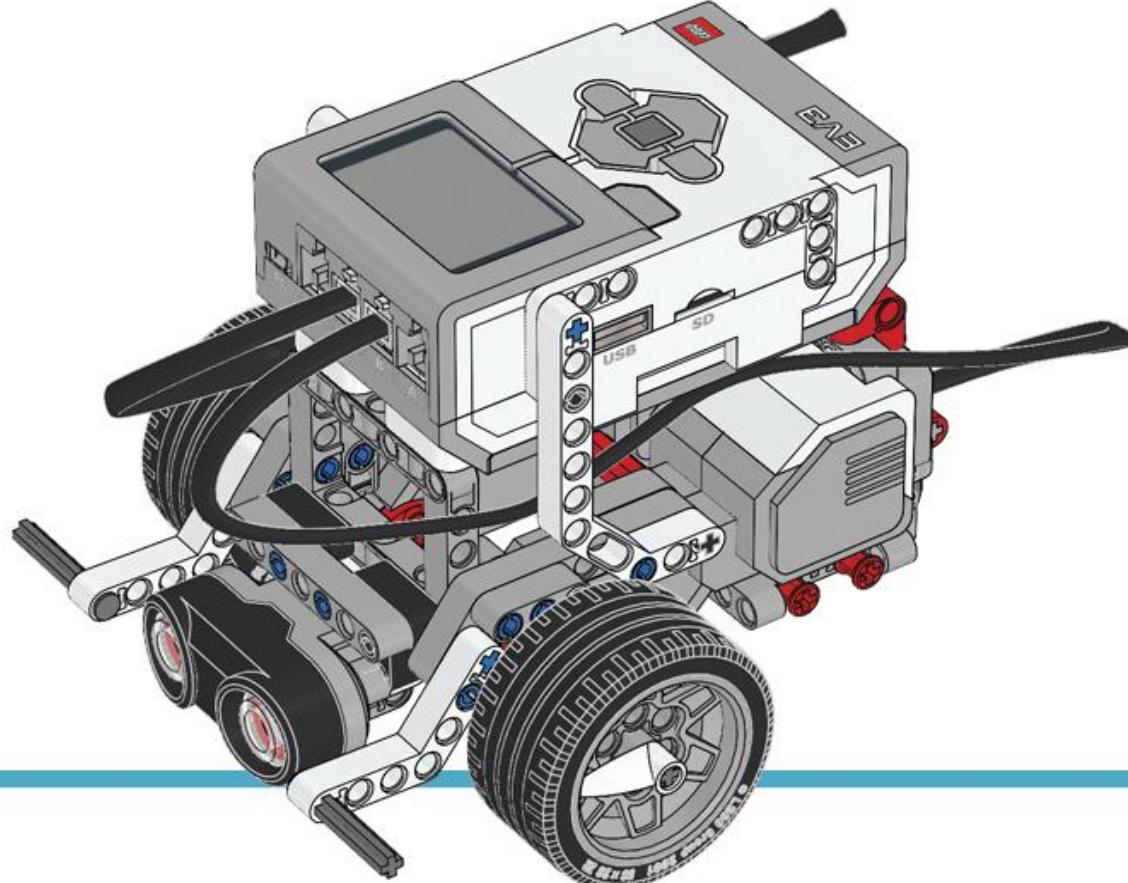
**25 cm / 10 in.**

**1x**

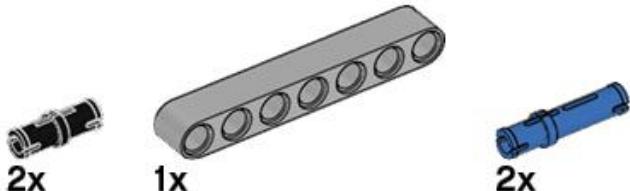


6

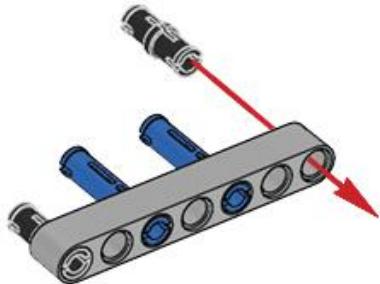




**LEGO** **MINDSTORMS**  
education **EV3**



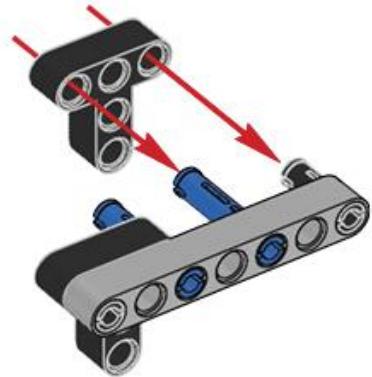
1





2x

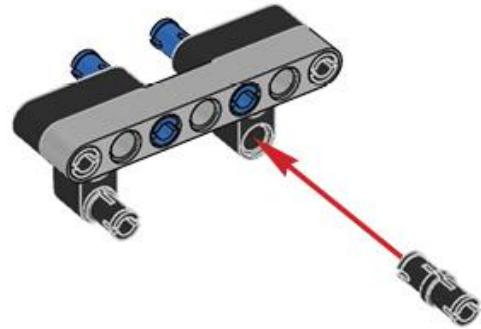
2

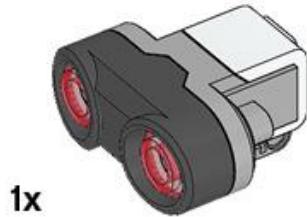




2x

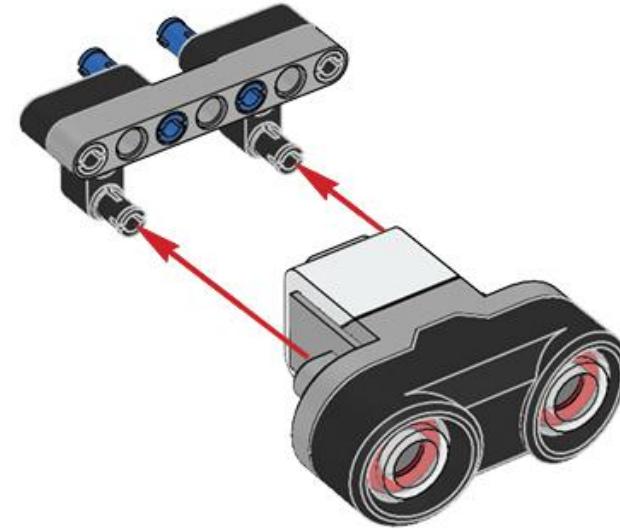
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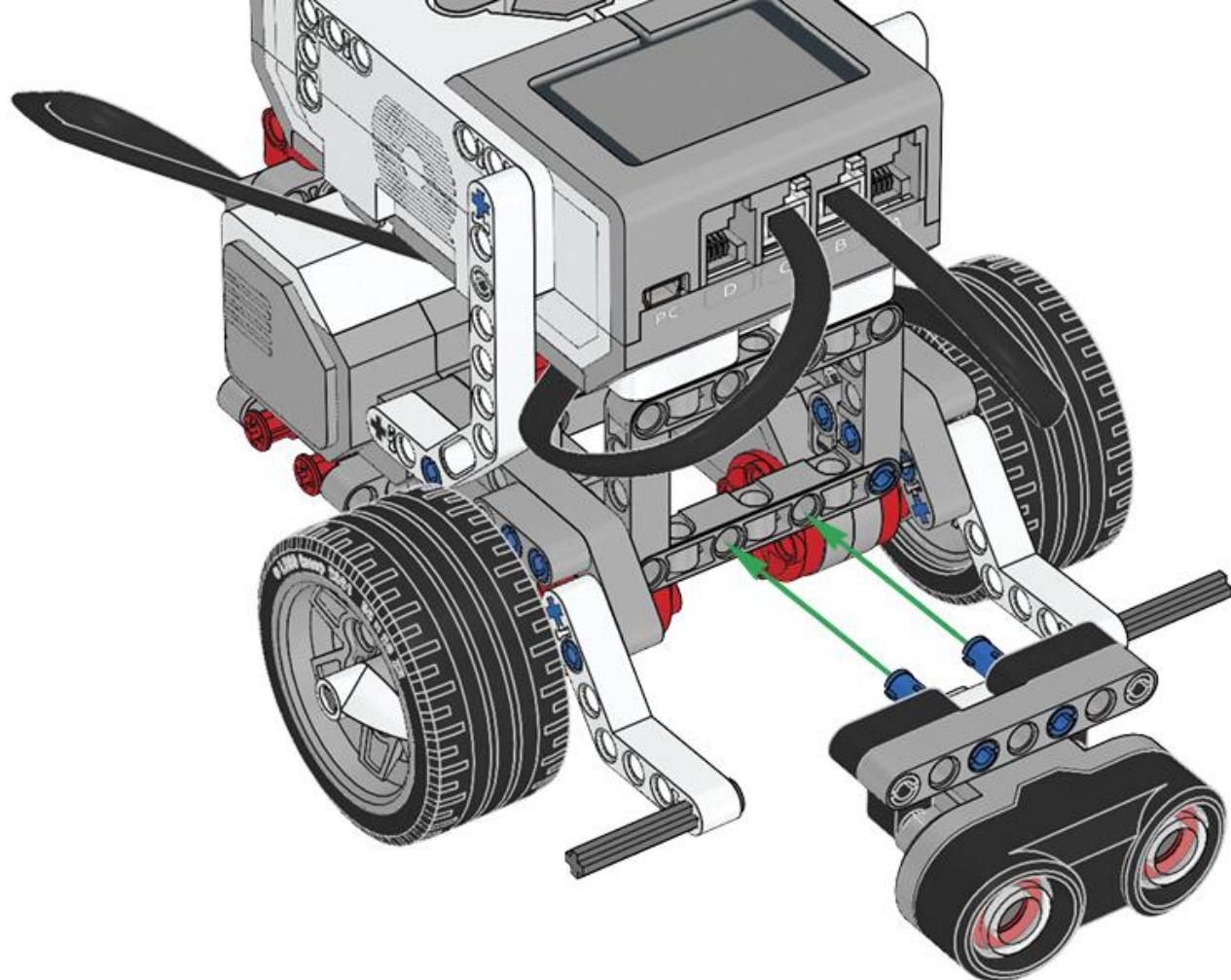


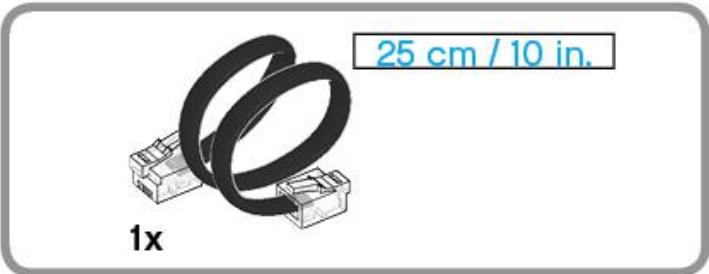
For the Home Edition, the Infrared Sensor is used in place of the Ultrasonic sensor.

4

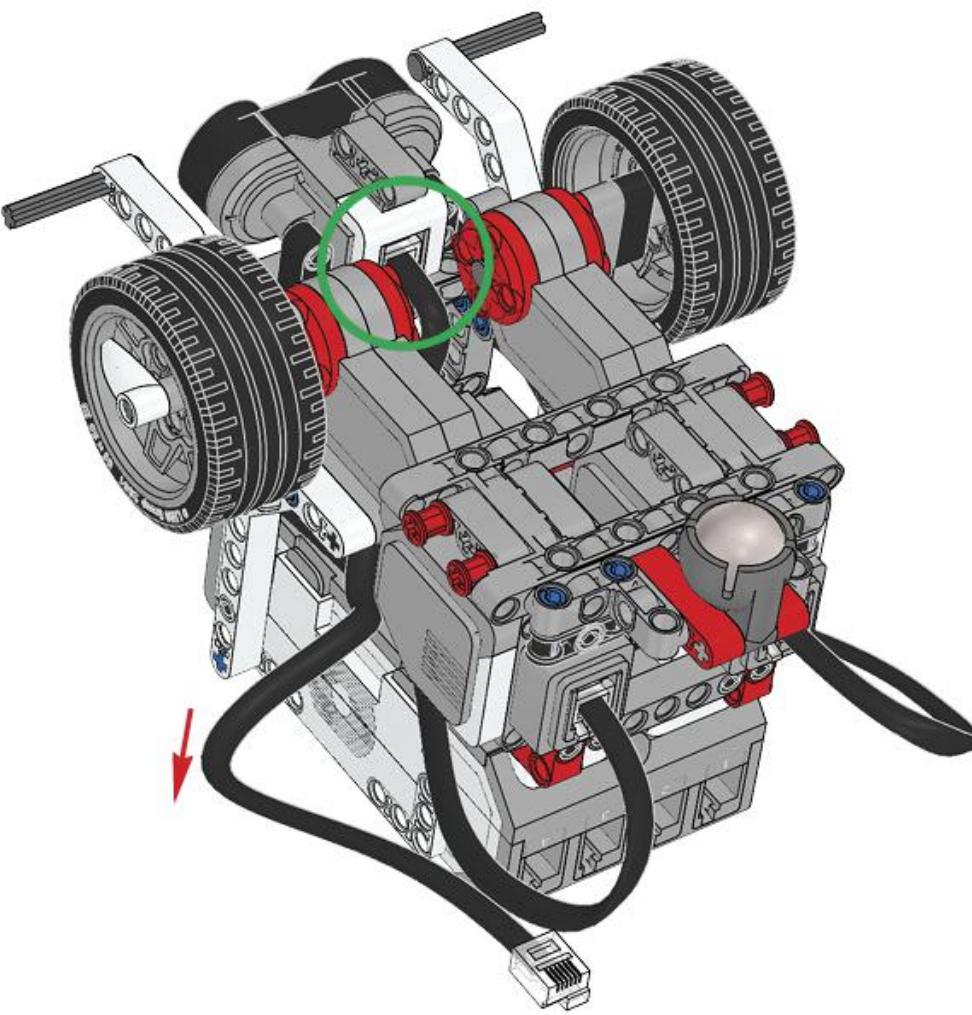


**5**





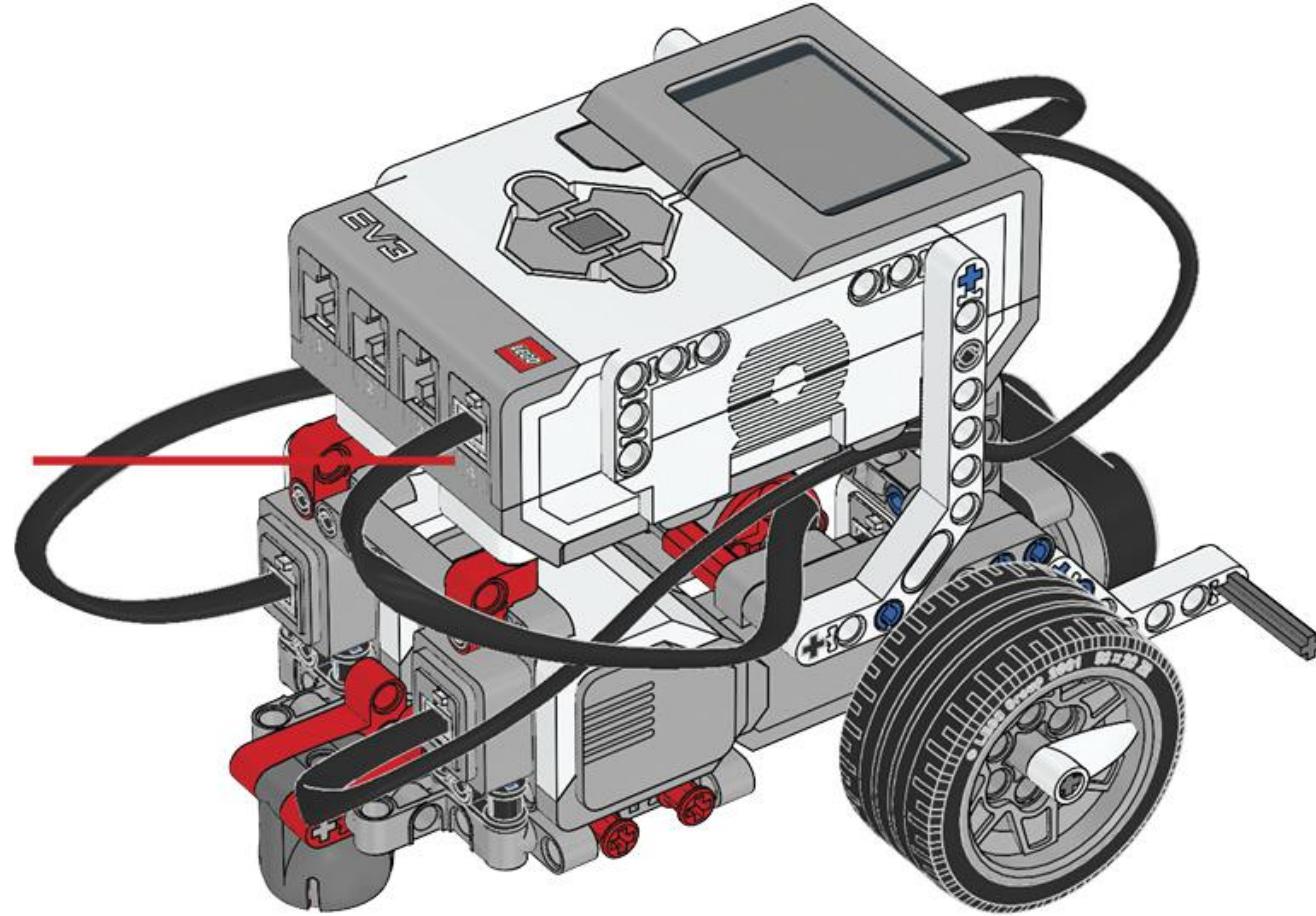
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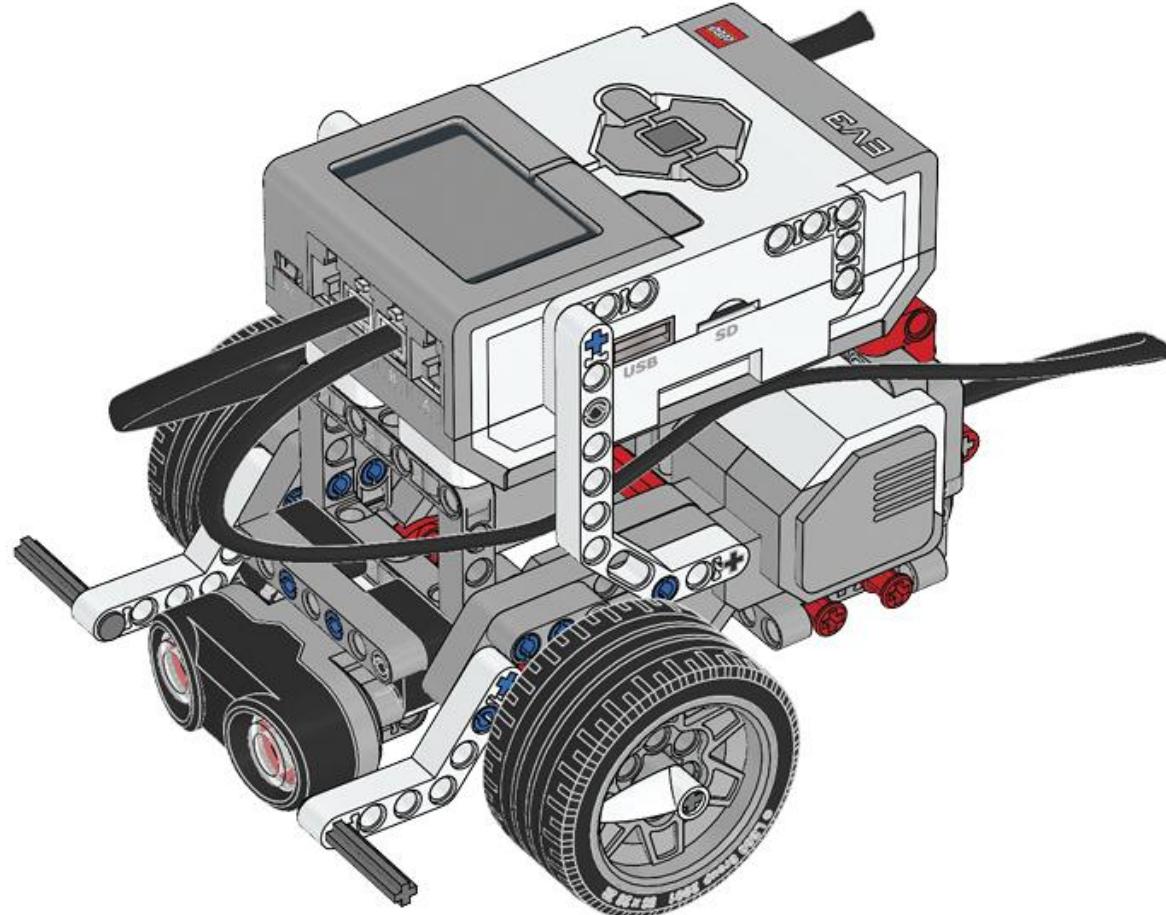
7

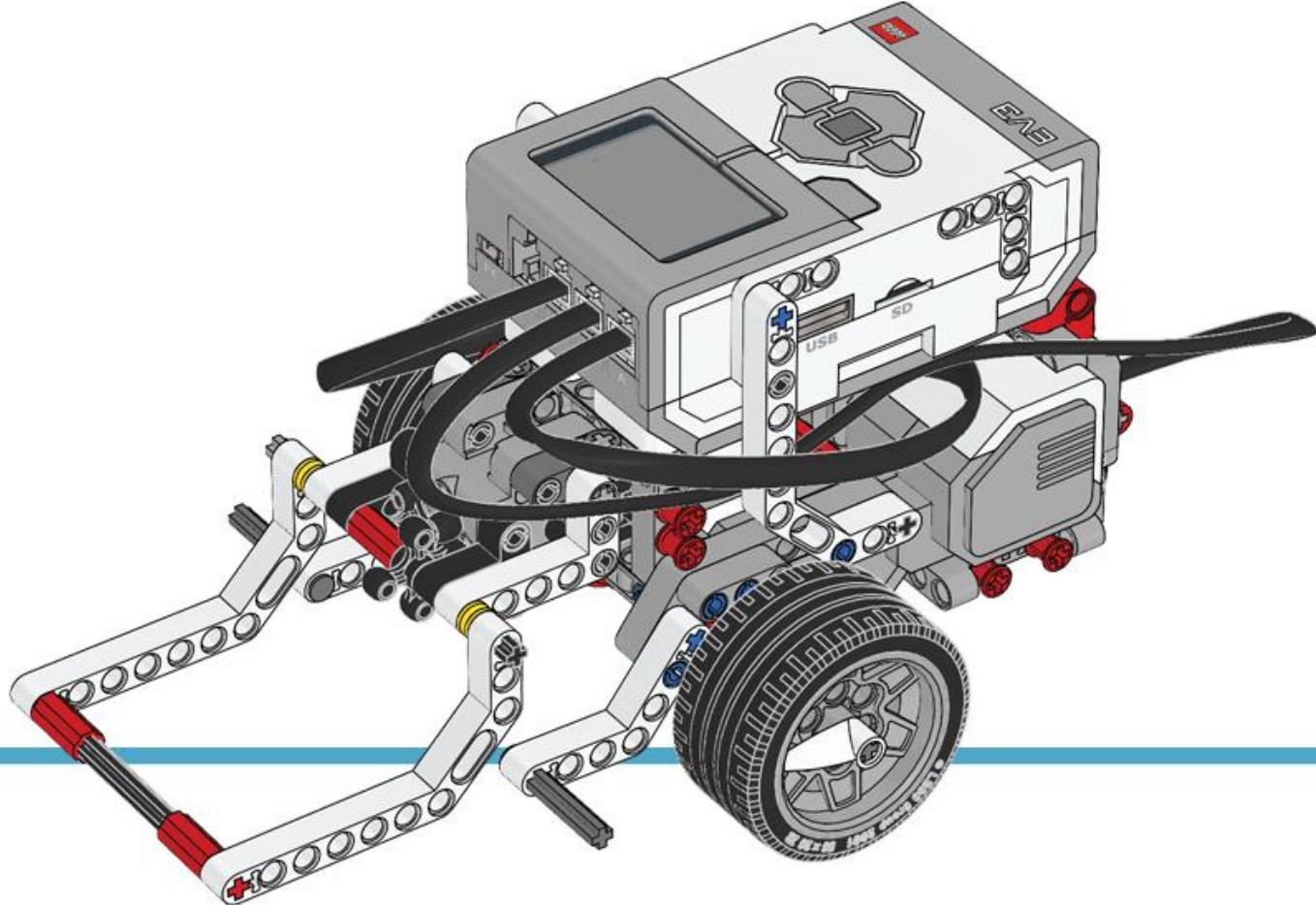


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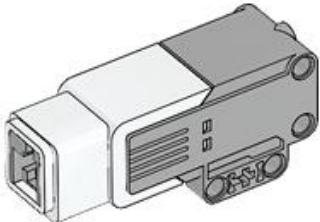
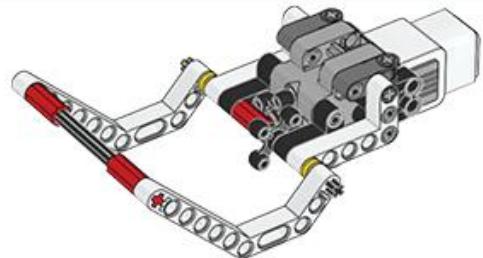


8



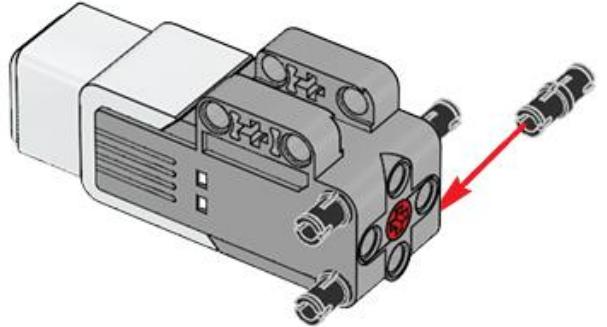


**LEGO** **MINDSTORMS**  
education **EV3**



4x

1



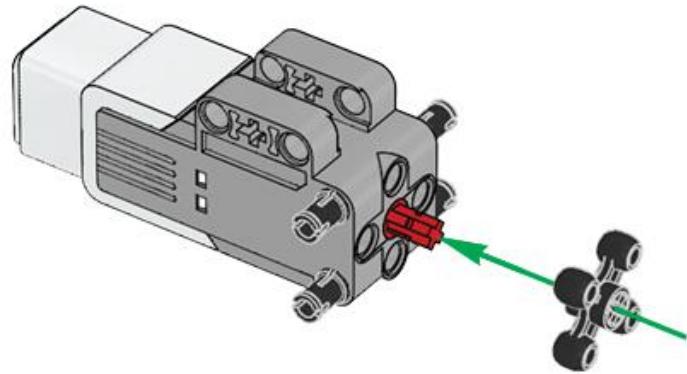


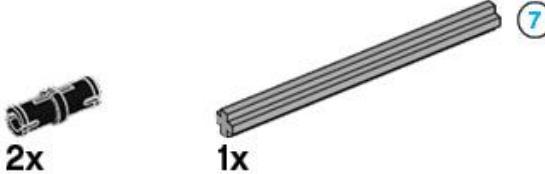
1x



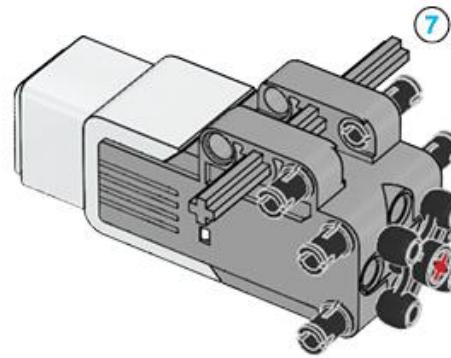
1x

2





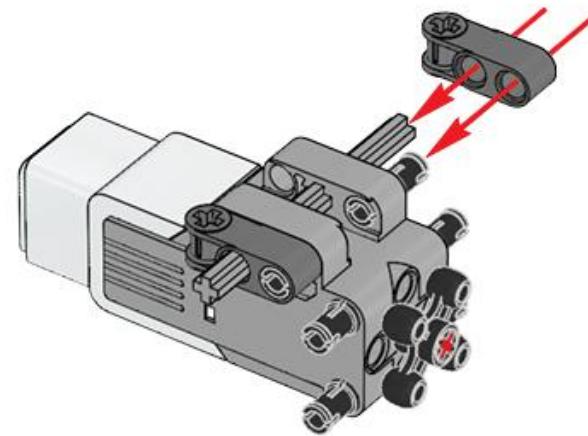
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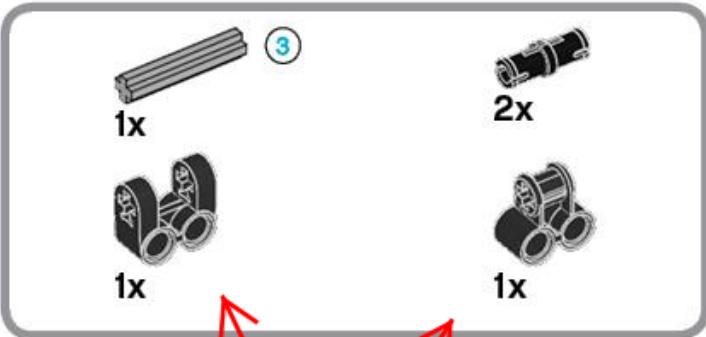




This piece will  
be red for the  
Home Edition.

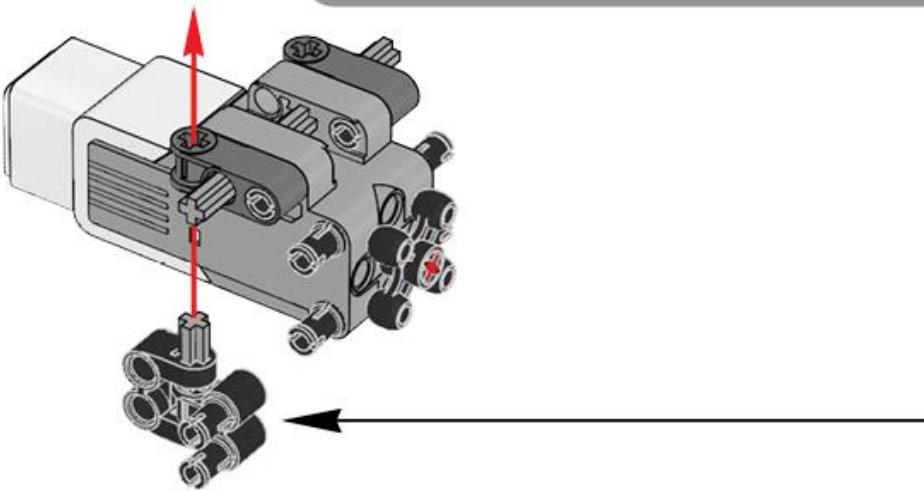
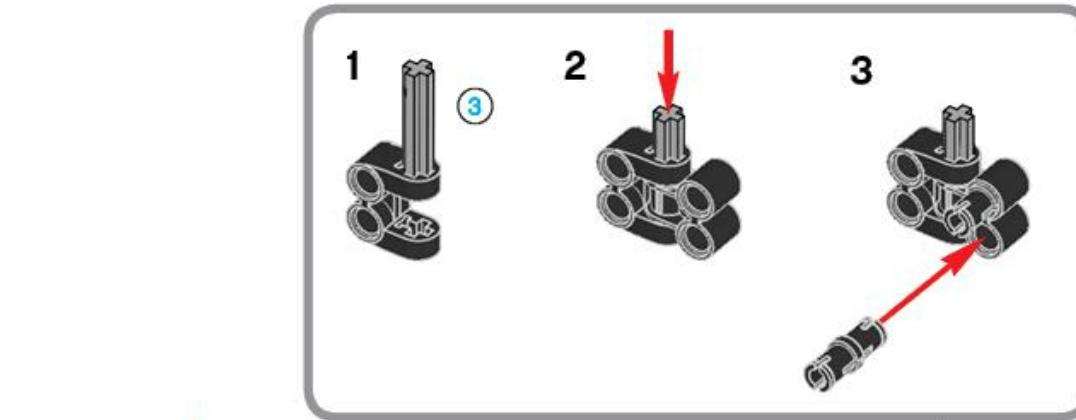
4





**5**

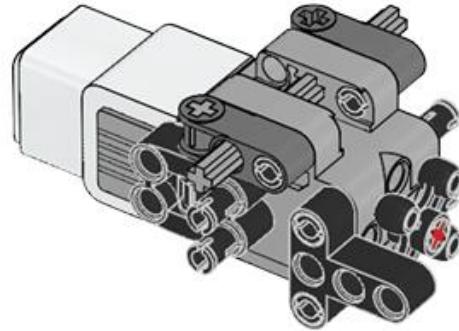
These pieces will  
be red in the Home  
Edition





1x

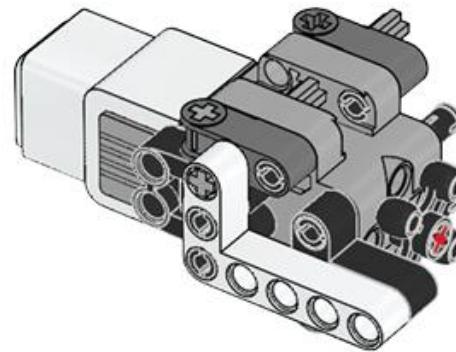
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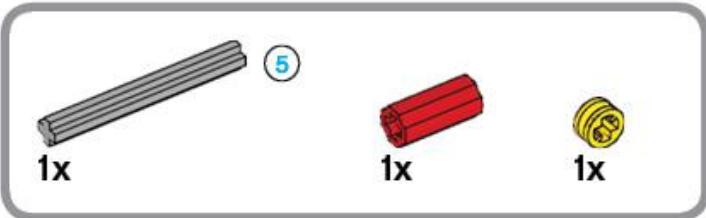




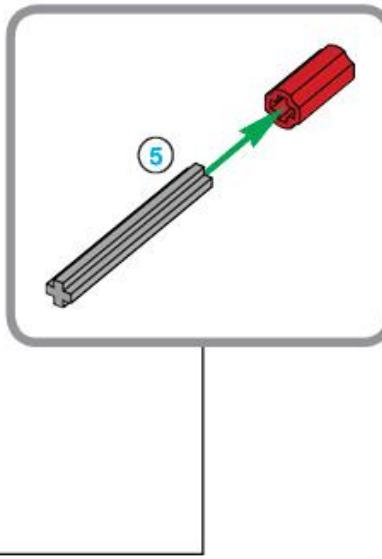
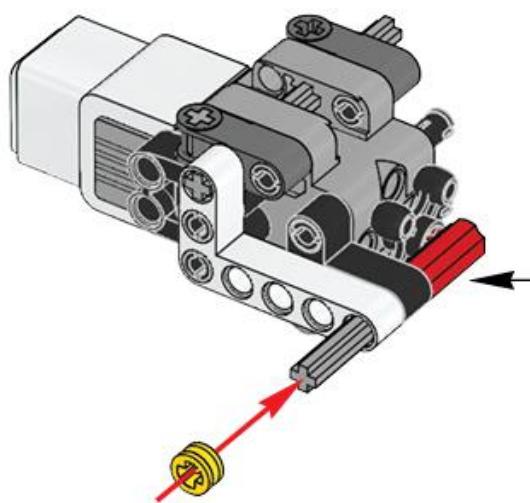
1x

7



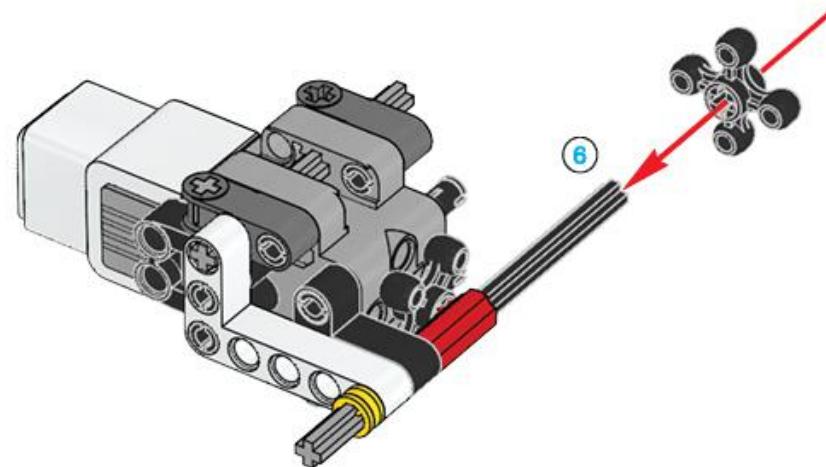


8





9





1x



1x



2x



1x



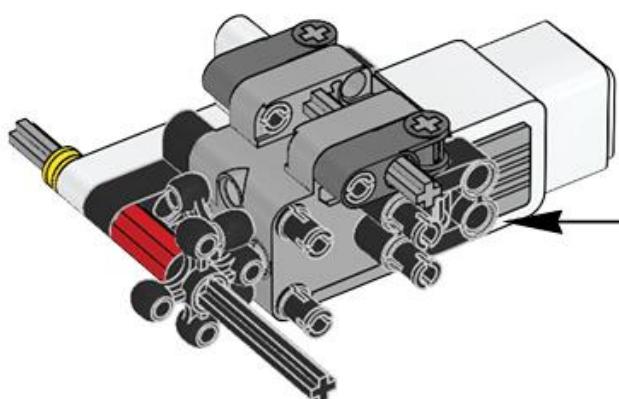
1



2



3

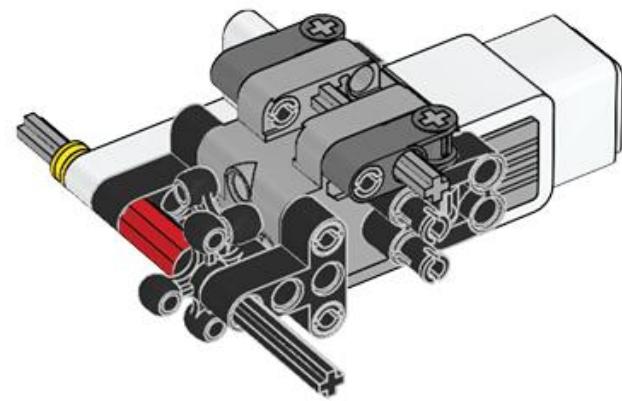


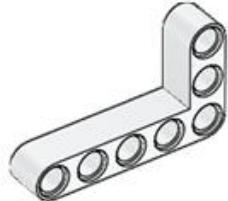
10



1x

11



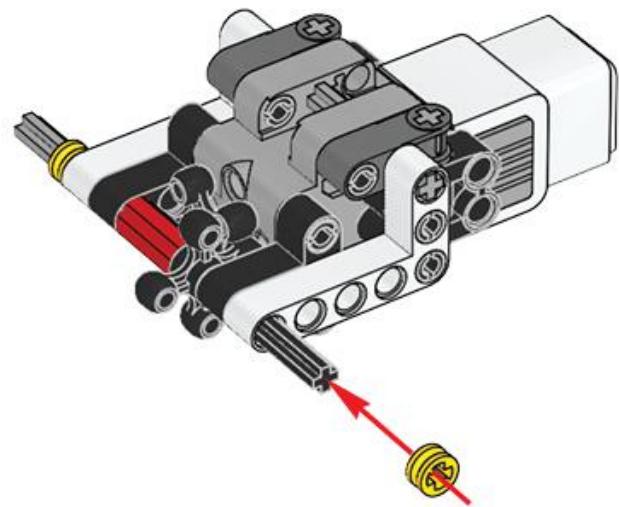


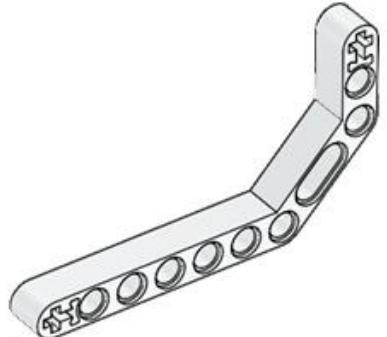
1x



1x

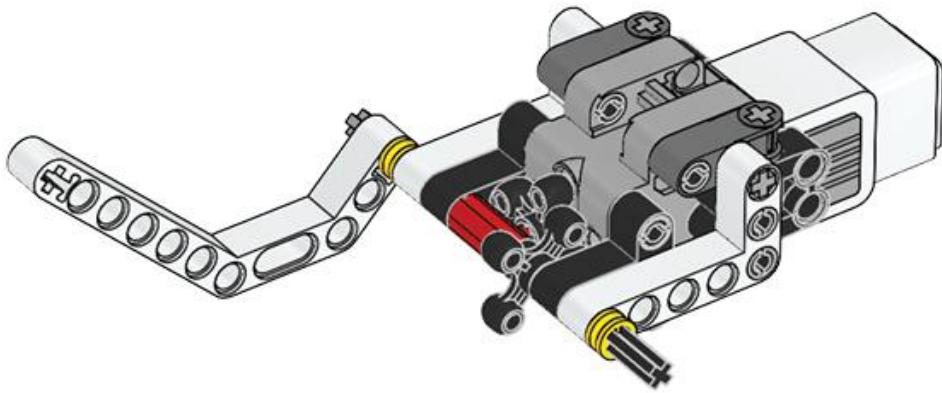
12

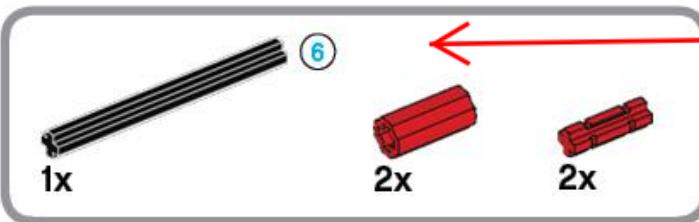




1x

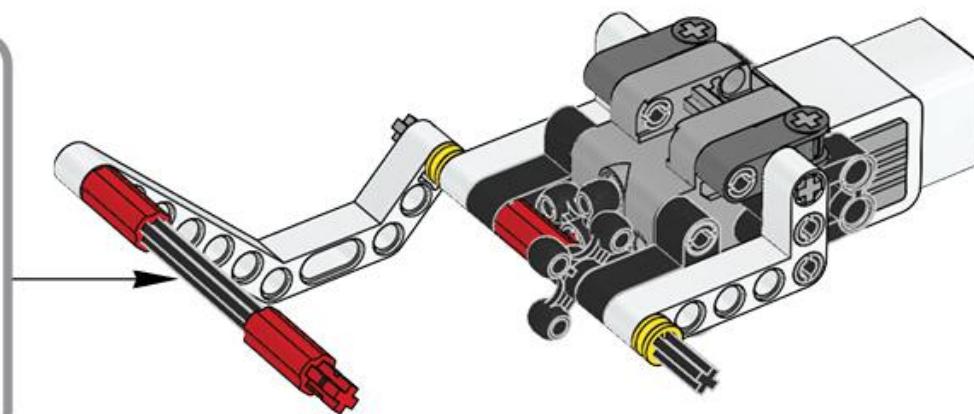
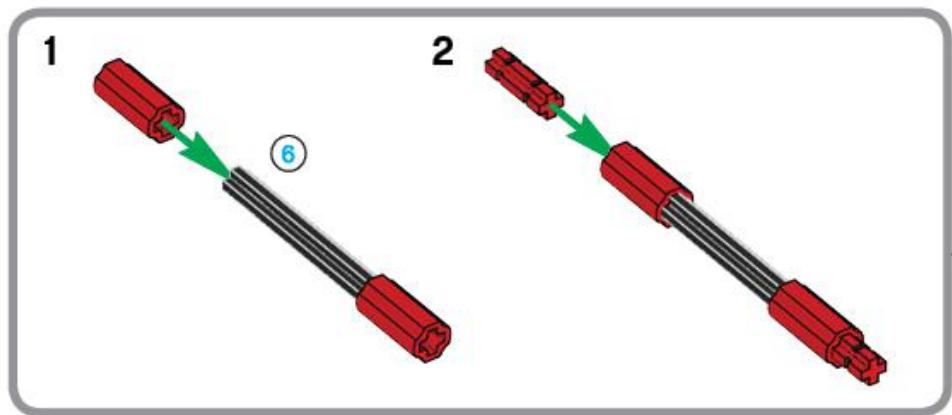
13

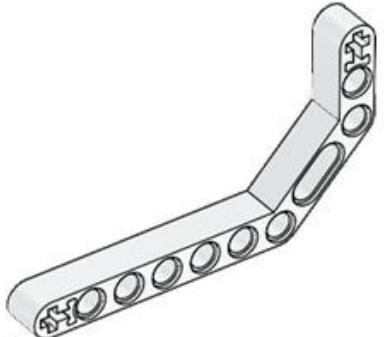




For the Home Edition, just use a longer black axle, and no red pieces.

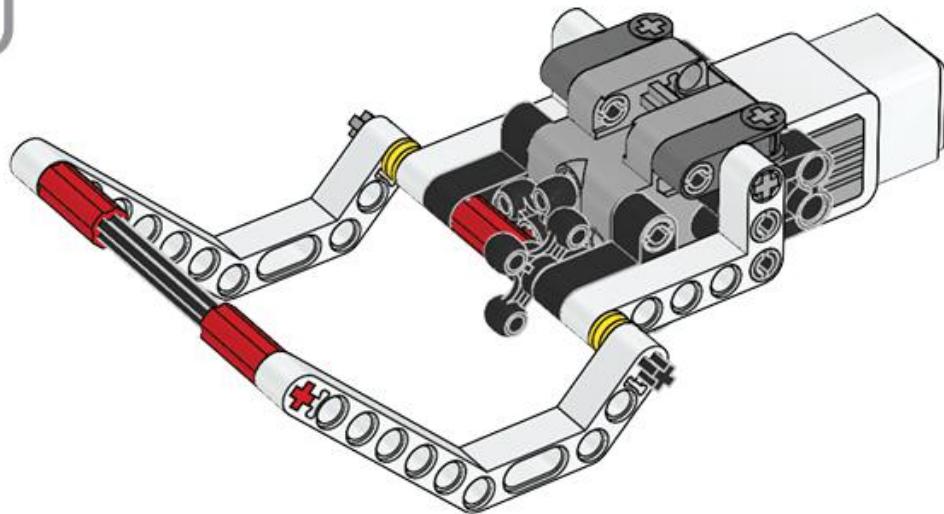
14

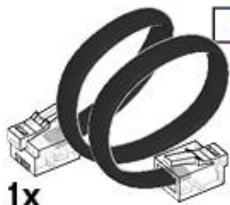




1x

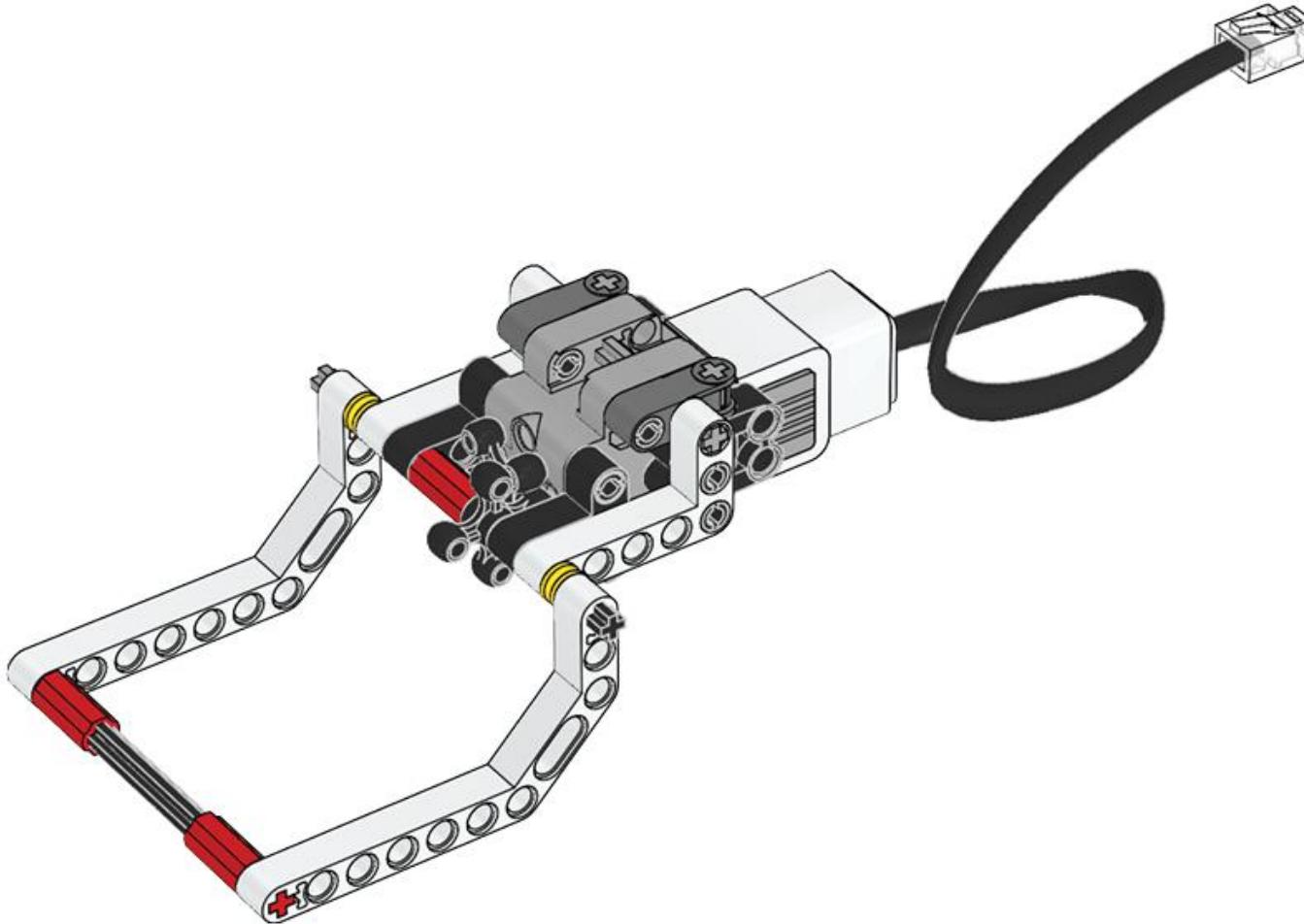
15



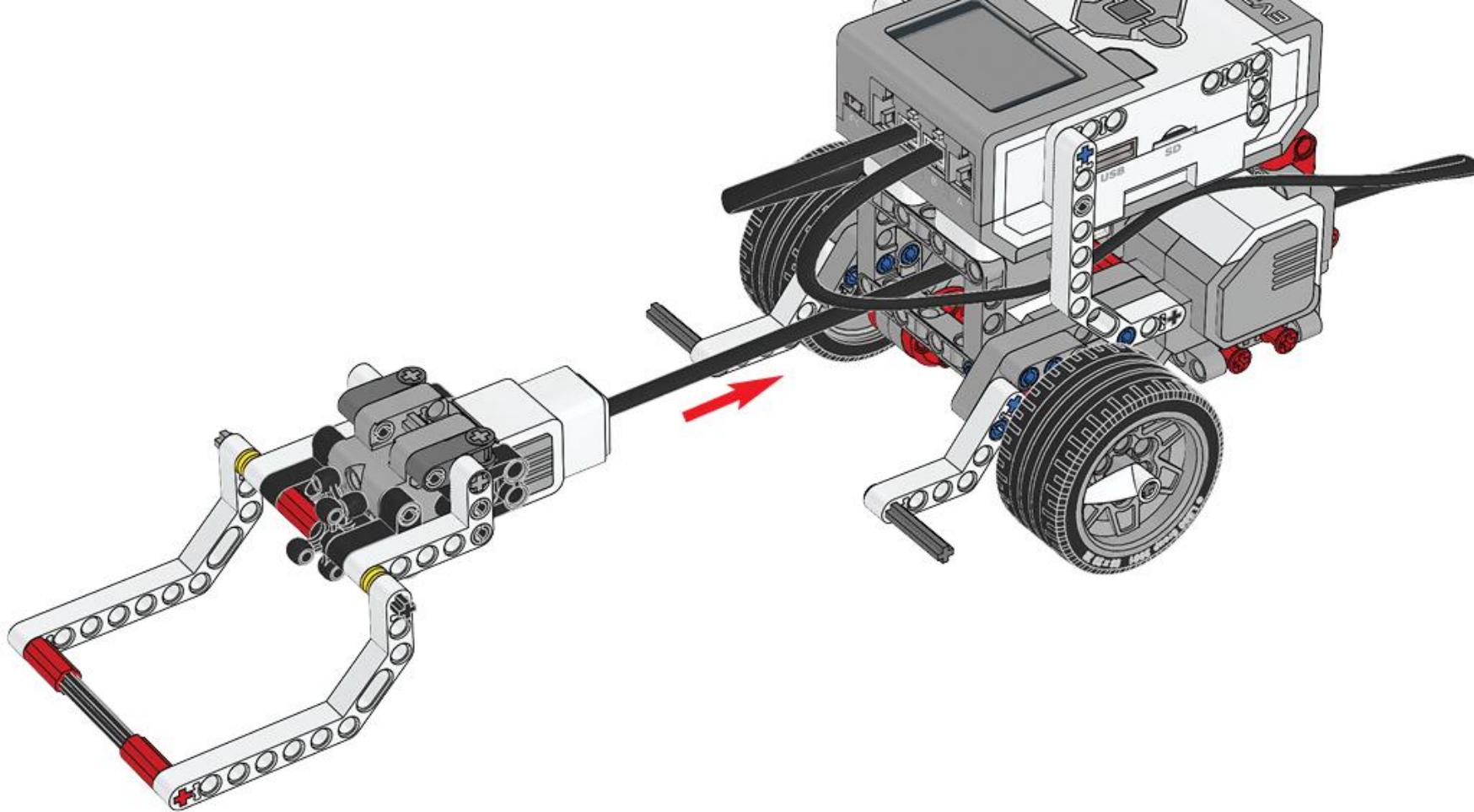


25 cm / 10 in.

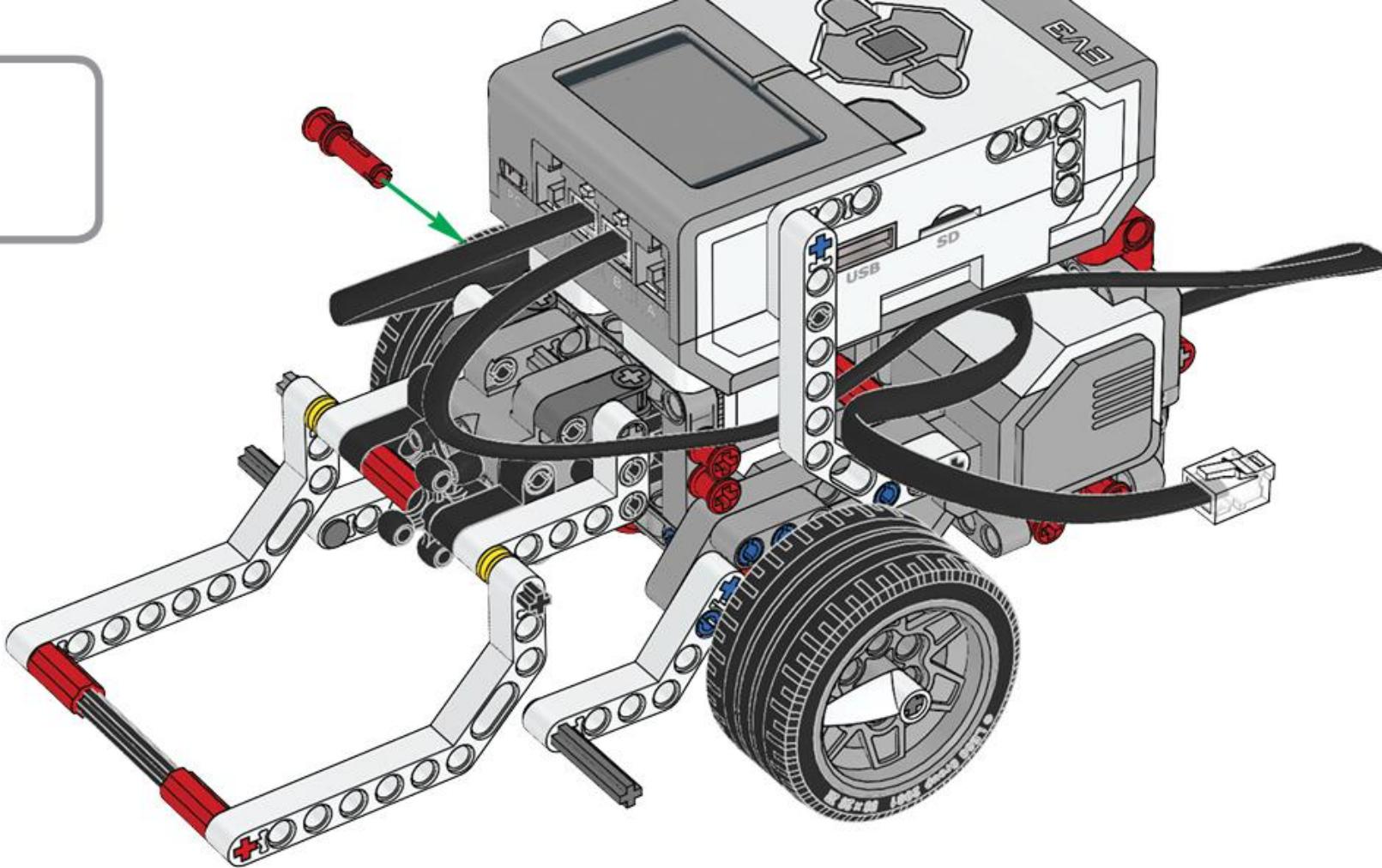
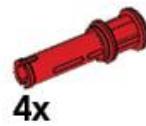
16



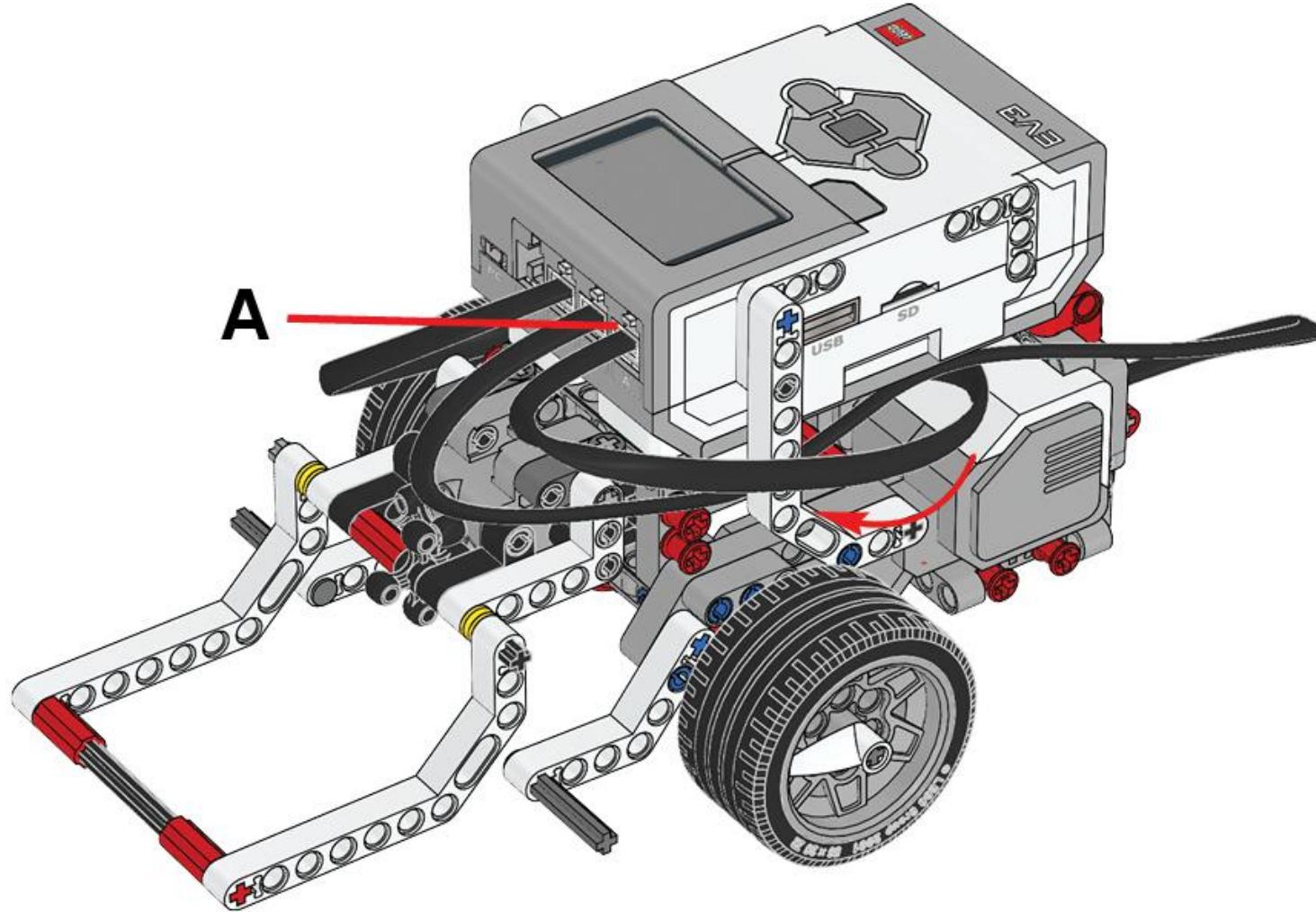
17



**18**



19



20

