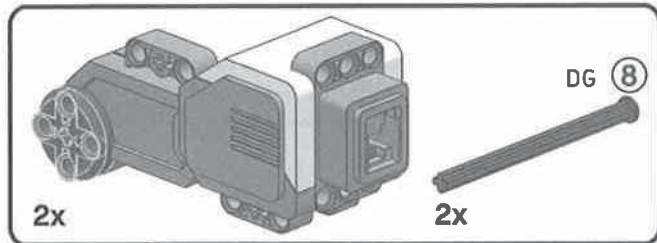


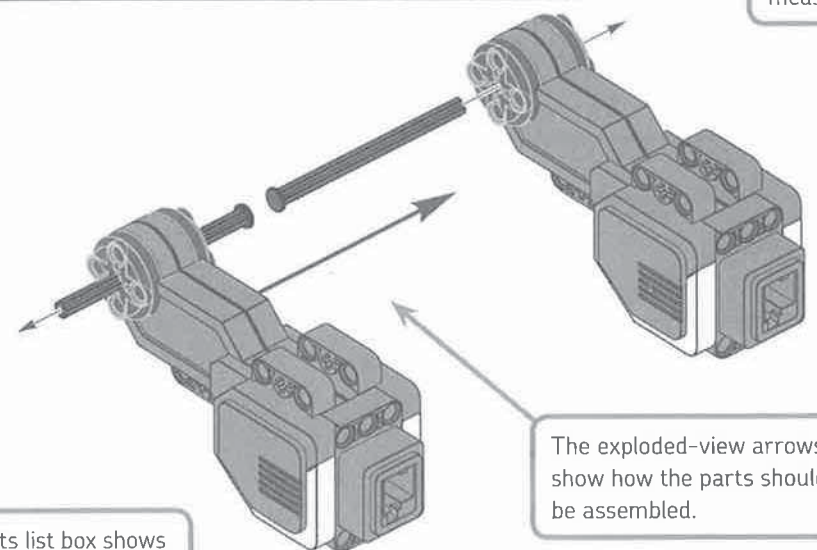
base module

First you'll need to build the Base Module, which can be used with wheels (see "ROV3R with Wheels" on page 23) or treads (see "ROV3R with Treads" on page 40).

1



At the top of an axle, you will see a number indicating its length. To determine the length of an axle, first place it next to a long beam and then count the holes in the beam that lie alongside the axle. You can also use these real-scale pictures to measure axles.

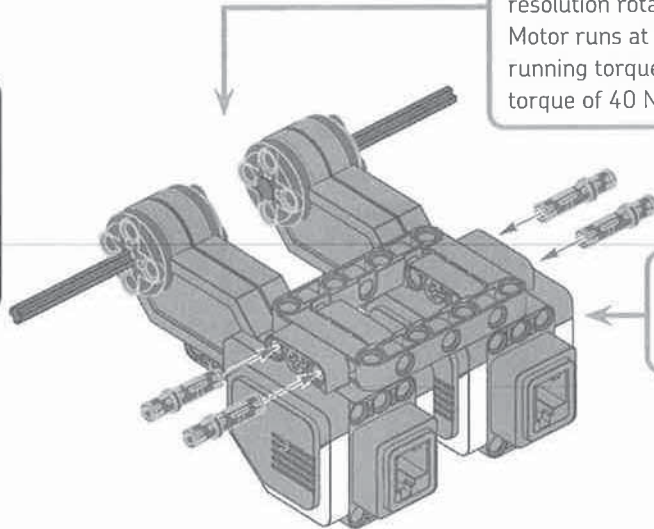
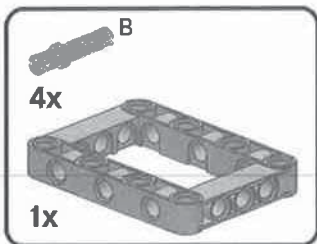


The parts list box shows the elements you'll need for that particular step.

The exploded-view arrows show how the parts should be assembled.

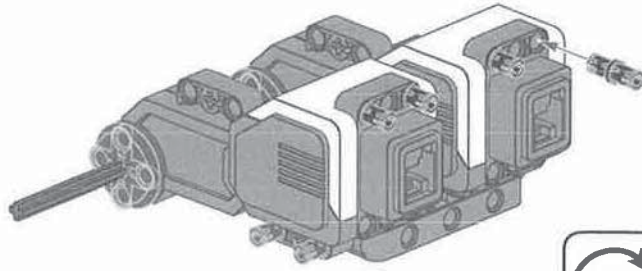
The EV3 Large Servo Motor is internally geared down, with a built-in one-degree-resolution rotation sensor. The Large Motor runs at 160 to 170 rpm, with a running torque of 20 N·cm and a stall torque of 40 N·cm.

2

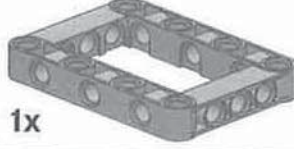





The O-frame holds the motors together. This technique is called *bracing*.

3  4x

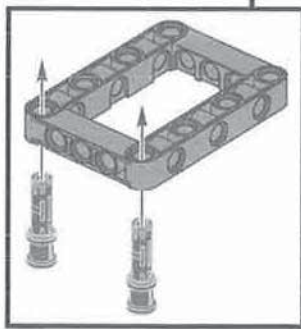
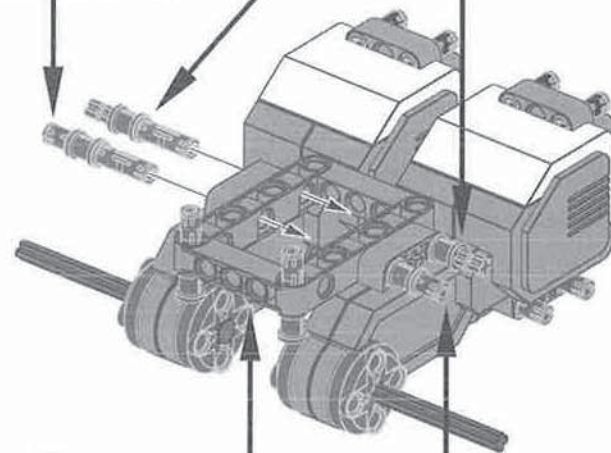



When you see this symbol, rotate the model to look like the picture.

4  1x  6x R  2x B  2x R ②

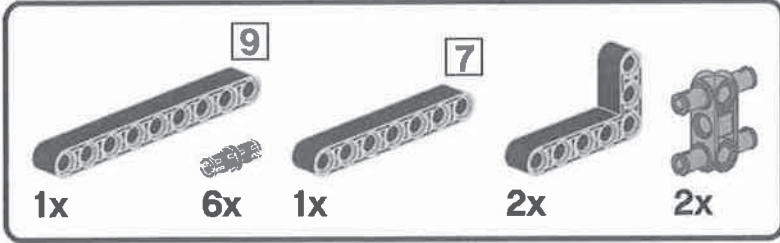


Always build the subassemblies shown in the callouts first. Then add them to the main model.

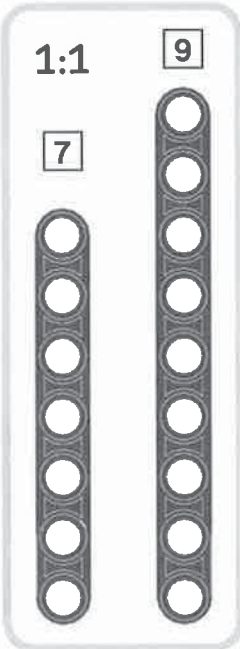
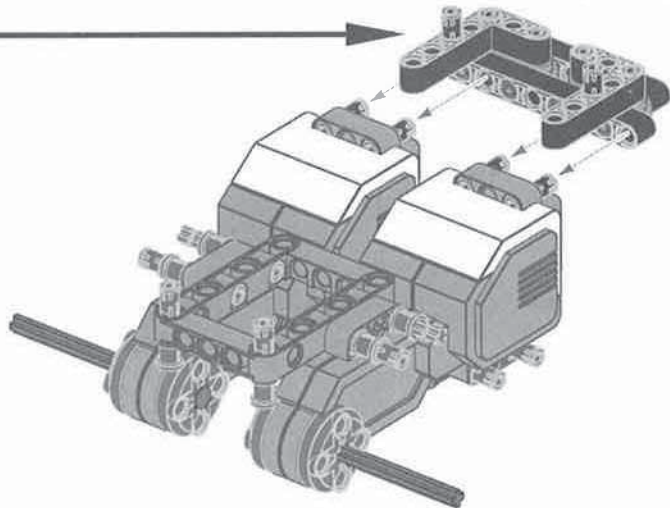
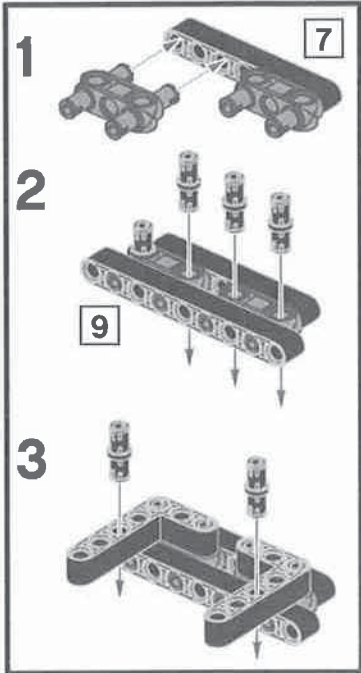


 Inserting an axle pin into the cross hole of a 3M pin with stop bush gives you a sort of four-module-long pin.

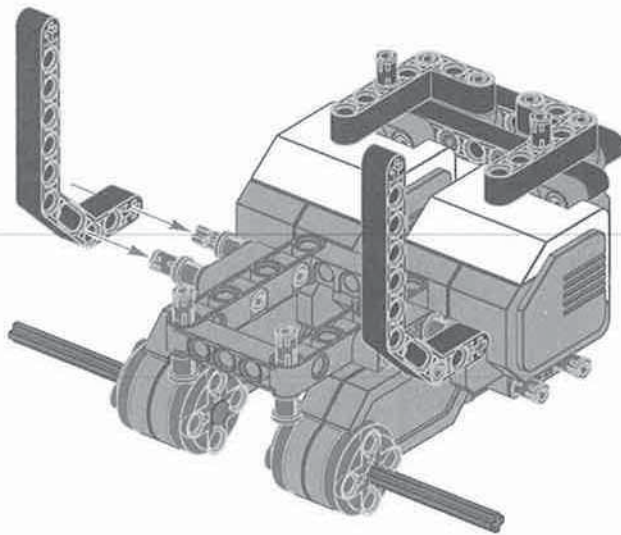
5



The 9M beam braces the motors so that you can no longer pull them apart. This is another example of bracing.

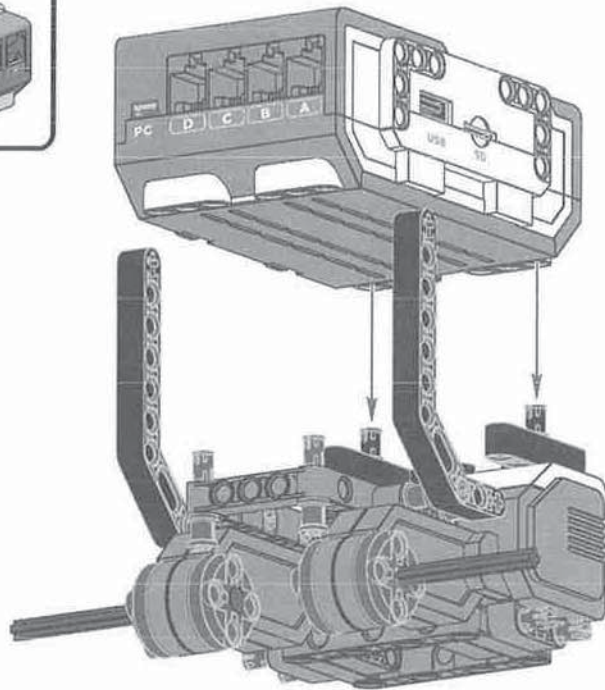
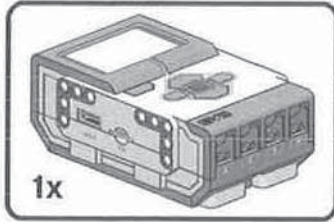


6

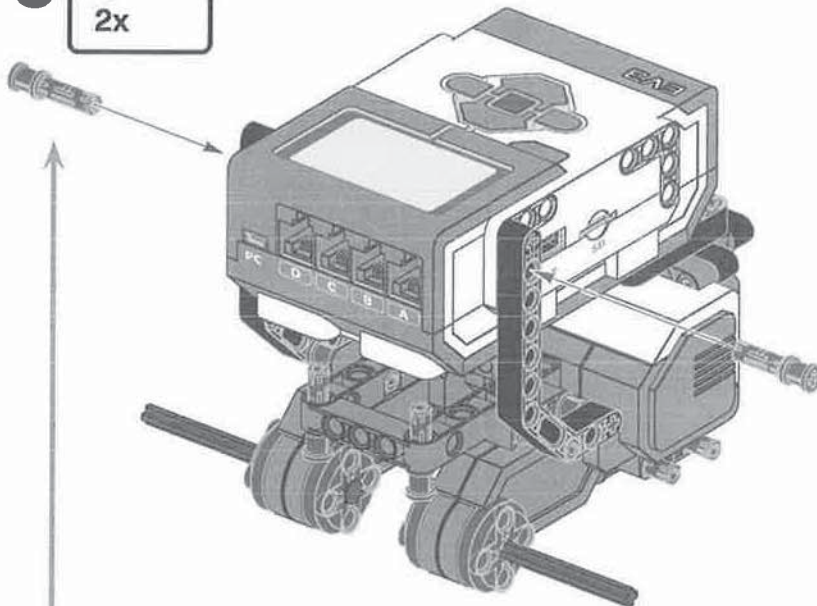


The double angular beam's ends form a right angle, since each bend is 45 degrees.

7



8

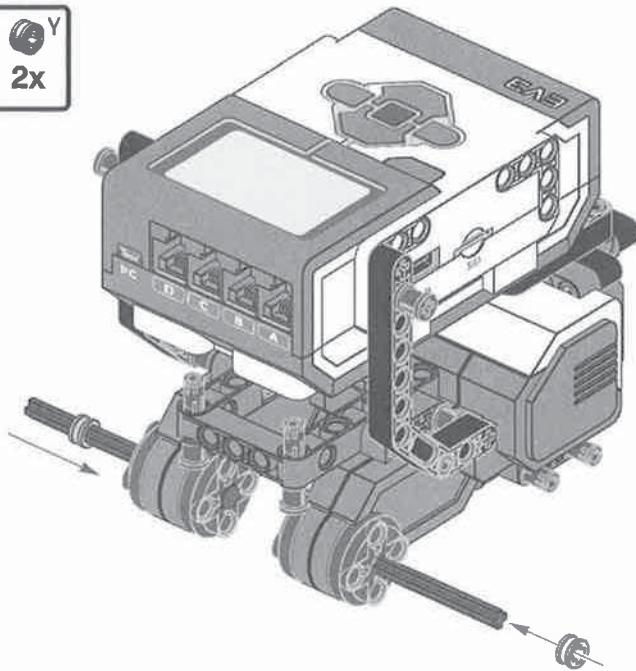


The Base Module is complete.

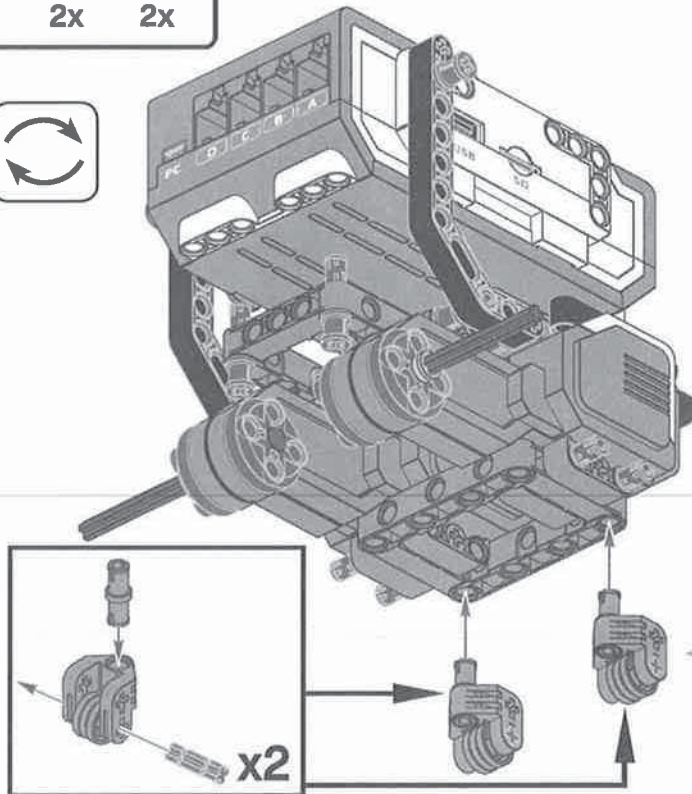
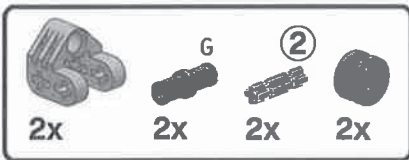
Lock the EV3 Brick with the 3M pins with stop bush. Thanks to the bush, these pins can be easily grabbed and pulled out with little force.

ROV3R with wheels

1  2x

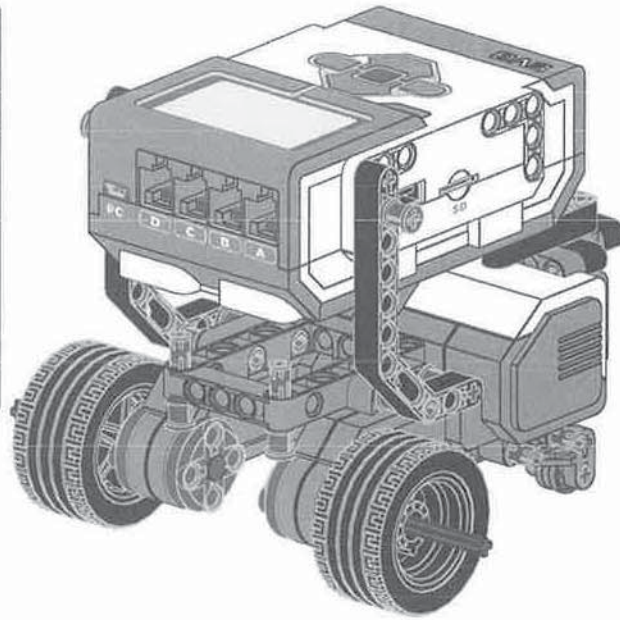
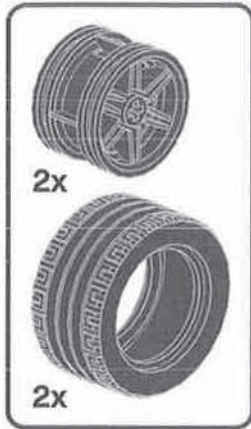


2

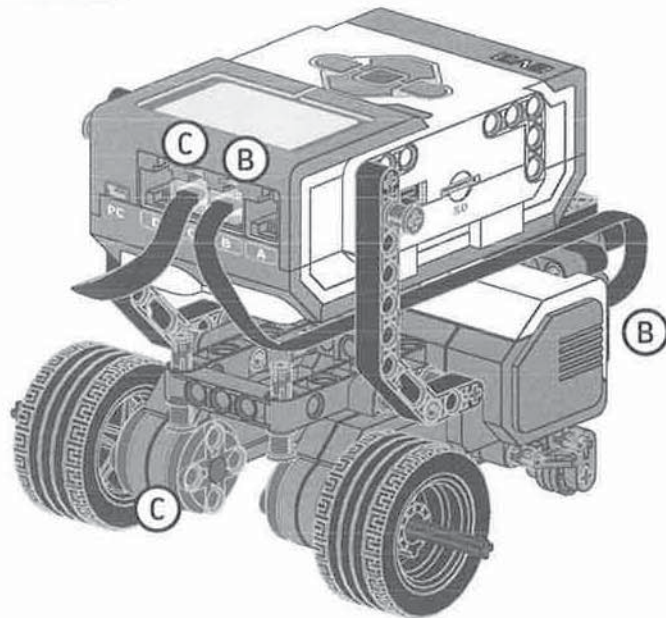
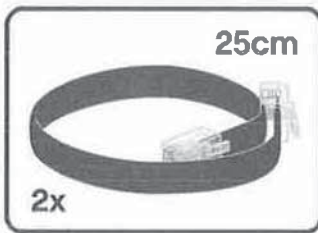


These small caster wheels support the robot. They are passive, meaning that they don't propel the robot but just follow the robot's motion. Like shopping cart wheels, these wheels sometimes swivel when the robot reverses direction, causing the robot to jiggle.

3



4



The EV3 Brick has four output ports, labeled A, B, C, and D. Use the short cables to connect the right driving motor to port C and the left driving motor to port B.

The ROV3R with Wheels is now complete. You can attach the modules in this chapter to this version of ROV3R *or* to the ROV3R with Treads.