

1

your LEGO BOOST creative toolbox

Your LEGO BOOST set includes an amazing assortment of colorful LEGO elements, ranging from plain bricks, plates, and tiles to Technic bricks and beams, axles, pins, gears, wheels, treads, and weird decorative elements. It also includes the LEGO BOOST Move Hub, the external motor and sensor that make this set unique!

If you haven't already done so, open your box. As you see in **FIGURE 1-1**, you'll find 11 numbered bags, an extra bag of pieces, a white box holding the LEGO BOOST Move Hub, and the LEGO BOOST cardboard playmat.



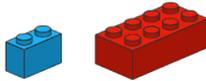
FIGURE 1-1 The LEGO BOOST set 17101 contains LEGO parts, electronic elements, and a cardboard playmat.

speaking LEGO

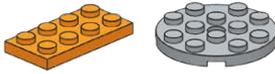
Imagine that you're building a LEGO BOOST creation with your friends and you need a part. But all you can muster is "Hey, would you pass me that . . . something . . . whatchamacallit . . . thingy?"

It's much easier to master LEGO building techniques—and talk about them with others—if you know how to classify, name, and measure LEGO parts. You can't write a novel if you don't know grammar and vocabulary, and the same holds true for making LEGO creations. You've got to learn how to speak LEGO.

The pieces in the LEGO BOOST set can be divided into these categories:



bricks These are the basic building blocks. You can measure them by counting the *studs* on top, and you name them by their studs. You'd say "2 by 4 brick" or see in print "2×4 brick."



plates and flat tiles These thin pieces are one-third the height of a brick.



SNOT elements SNOT stands for *Studs Not on Top*. These elements have studs also on their sides, allowing you to build in different directions.



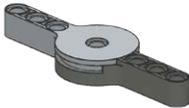
beams These Technic elements can be joined with connectors. You can measure these parts by counting their holes, just as with bricks.



axles These rods can spin freely or can be used to join elements fast together.



pins Pins come in two varieties: one with friction that holds fast and one without friction designed to spin freely. Try connecting beams with different kinds of pins to feel the difference.



hinges These pieces add joints to your models.



gears These pieces transmit motion.



wheels These pieces come in a variety of sizes.



treads Use these for a tank or a bulldozer, and change the length by adding more pieces. The orange pads add grip to the tread.

Your LEGO BOOST set comes with three electronic components, shown in **FIGURE 1-2**.

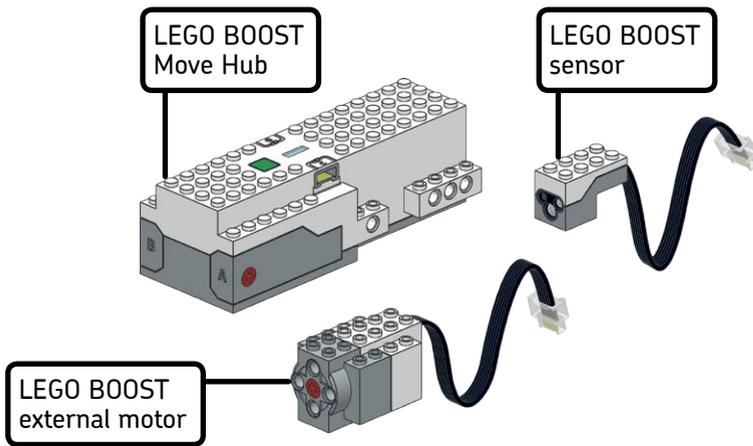


FIGURE 1-2 The electronic pieces

Move Hub Also called the *drivebase*, this is the “brain” of the BOOST set, and it communicates with your device using Bluetooth. The Move Hub has two motors, a built-in tilt sensor, and a multicolored light. You can connect the external motor and the sensor to its two ports. To power it, use 6 AAA batteries. (You might want to buy rechargeable batteries. The Move Hub is a real power hog that will drain a full set of batteries in few hours.)

motor When it’s connected to the Move Hub, you can control this motor with precision.

sensor This sensor can detect colors, measure how far away objects are, and more.

Try playing around with these elements to get a better sense of what they do and how they work. Want to really geek out and get an exact inventory of every piece in the LEGO BOOST set? Check out the Complete Parts Reference at <https://nostarch.com/lego-boost-activity-book/>.

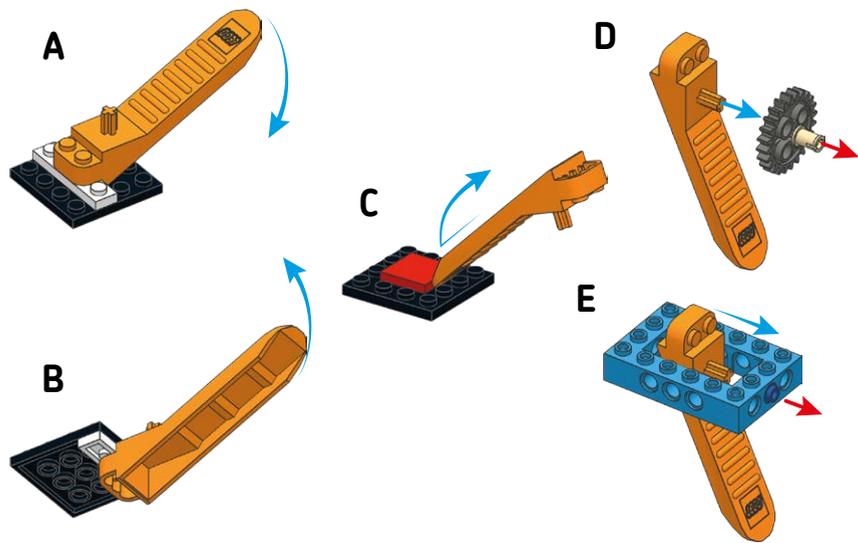
programming your robots

Programming a robot means telling your robot exactly what to do. To program the LEGO BOOST Hub, you’ll need to download the LEGO BOOST app. The app allows you to *code*, or give your robot instructions in its own language. Download the LEGO BOOST app from the Google Play Store if you have an Android device, from the App Store if you own an Apple device, or from the Windows Store if you have a Windows 10 computer.

LEGO provides a list of compatible devices at <https://www.lego.com/en-us/service/device-guide/BOOST/>. Also, an ever-growing unofficial list of tested, compatible iOS and Android devices is published by the Facebook Unofficial LEGO BOOST Community Group (<https://www.facebook.com/groups/BOOSTcommunity/>).

how to use the brick separator

The BOOST set includes a handy tool, the LEGO brick separator, which looks a little like a crowbar. You can use this tool to separate a plate from the top (A) or bottom (B) of another plate, to lift tiles by their groove (C), or to push pins and axle pins out of the holes and cross holes of gears (D) or bricks (E).



let's build a robot!

Now that you've seen a preview of the elements of the LEGO BOOST set and installed the app to control your robots, let's build a simple robot that moves so you can start exploring the world of robotics.