

SPIKE Prime

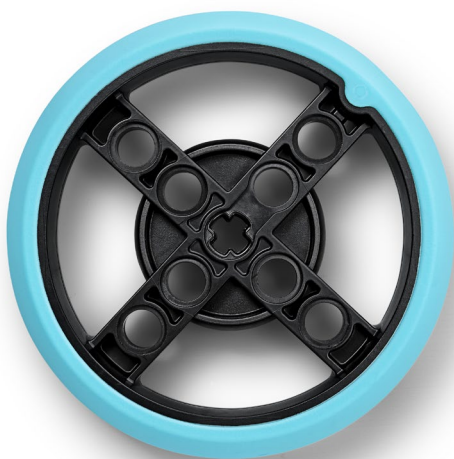
by Seshan Brothers

SPIKE Prime is the newest member of the LEGO® robotics family. It is marketed to students in grades six to eight, however, the product is just as accessible to younger students and provides interesting opportunities for older ones. The color pallet is bright (purple, blue, black and yellow) and gender-neutral, appealing to boys and girls alike.

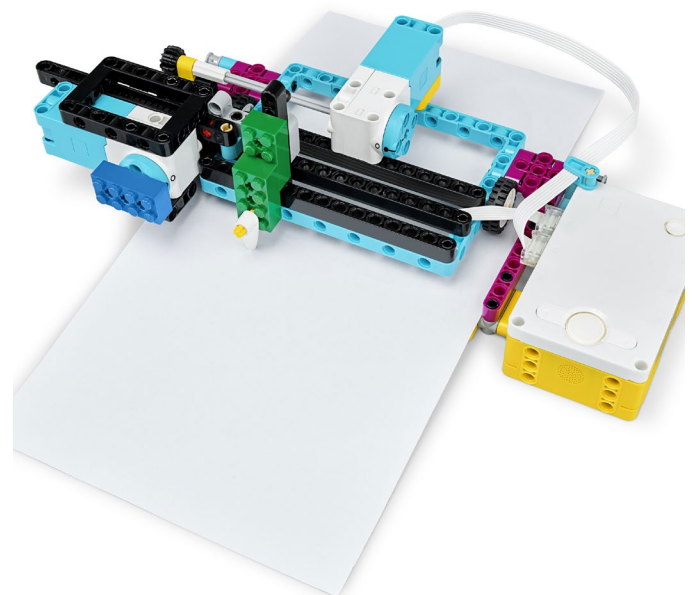
SPIKE Prime (#45678) features brand new elements and electronics. The new squarish form factor of the programmable hub, motors and sensors make the SPIKE Prime Hub easy to build. You can build a basic, sturdy robot within minutes. The SPIKE Prime Set comes with 2 Medium motors and 1 Large Motor. It also includes 1 Color Sensor, 1 Force Sensor and 1 Distance Sensor. In addition, the hub features a built-in gyro sensor. The SPIKE Prime Expansion (45680) set comes with an additional Large Motor and Color Sensor, perfect for a FIRST LEGO® League team. It also features a second ball/caster wheel and another large collection of elements including large frames and gears. The hub boasts six ports to which you can attach any motor or sensor to. There is a micro-USB port on the hub. You use this port to download programs and to charge the battery.

The new LEGO® elements in SPIKE Prime (listed below) make it even easier to build strong and fast. Of particular interest are the larger frames that make building large and strong incredibly easy.

- Connector Beam 1x3x3 (39793)
- Bright Yellow Technic Base Plate 11x19 (39369)
- Magenta Technic Frame 7x13 (39794)
- Medium Azur Technic Frame 11x15 (39790)
- Small Wheel 57 x 14 Integral Medium Azur Tire (39367)
- Large Wheel 88 X 14 Integral Medium Azur Tire (49295).
- Ball (52629) and castor joint (39370) with a H-shaped liftarm
- Wire Clips available in six colors (49283)
- 2x4 Brick with cross axle hole (39789)
- Technic Gear 28 Tooth Double Bevel (46372)



Many competition teams will want to pay close attention to the new tires. The smaller wheel is 56mm X 14mm. This is the same diameter as the EV3 Education Core set wheel, but half its width. The wheel in the Expansion Set is 88mm or 11 modules in diameter and 14mm wide. The tire is molded into both the wheel hubs. This means that the rubber tire will not come off the rim. The new tire's material provides good grip on surfaces and the rounded tire tread creates only a small point of contact with the mat enabling more accurate turns. These tires provide some great new options for teams.



The programming environment is based on Scratch, but features custom blocks created by the developers. For example, SPIKE Prime features My Blocks in the same way that MINDSTORMS EV3 does.

Today, many schools are already teaching Scratch to their students. Hence, a programmable LEGO® platform based on Scratch will make both students and teachers comfortable. Support for Python is also coming soon which allows older students some new programming possibilities. The lessons within the App are geared towards the classroom, short lessons designed to be completed in under 45 minutes.

The lessons are project-based; hence, students build a simple model and learn to program using that model. This is great for teachers.

SPIKE Prime is well-suited to FIRST LEGO® League teams. It features a Competition Ready unit that guides students to build and program a robot that is designed for competition use.

The Advanced Driving Base (ADB) is modular and can be built by team members simultaneously. It requires purchasing the Expansion Set. Once the robot is built, students also build a few mission elements that simulate competition-style challenges.

This set of lessons along with the ADB robot is designed to boost student confidence and give rookie FIRST LEGO® League teams a great place to start. We couldn't agree more.

Overall, SPIKE Prime is a great addition to the LEGO® robotics family. It features absolute motor encoders, a built-in gyro sensor and a new form factor that makes building much easier. While it is not a replacement for LEGO® MINDSTORMS EV3, it does a great job in offering features that improve LEGO® robotics for middle school-aged students.

Even though there is not screen and less ports available to users, the SPIKE Prime proves itself to be more than capable for the student, the competitor as well as the LEGO® enthusiast.

SPIKE Prime will officially launch in early 2020, but is available for pre-order in many countries.

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