

LEGO® Education and LEGO® MINDSTORMS® Robot Inventor

This document provides information and messaging on LEGO® Education SPIKE™ Prime's position as a learning solution next to the new LEGO® MINDSTORMS® Robot Inventor robotics toy.

Background

For the past 40 years LEGO Education has offered hands-on, playful STEAM learning experiences based on the LEGO building system for students and their teachers in early learning, primary, and secondary education as well as through after-school programs and competitions. These solutions create an environment where active, collaborative learners build skills for their future and a lifelong love for learning.

LEGO Education SPIKE™ Prime offers hands-on learning experiences for middle school students. SPIKE Prime is optimized for classroom settings and includes scaffolded units and lessons, assessment tools plus supportive materials to help teachers meet their curriculum objectives and engage students to develop 21st-century skills.

Recently, the LEGO Group announced a new addition to the LEGO MINDSTORMS theme. The new LEGO MINDSTORMS Robot Inventor set offers a playful robotics experience for children 10+ to build and code at home.

SPIKE Prime and MINDSTORMS Robot Inventor both inspire and develop the builders of tomorrow by giving children the opportunity to explore integrated technology as part of LEGO hands-on experiences. While MINDSTORMS Robot Inventor allows children 10+ to play with coding and technology at home, SPIKE Prime, a hands-on learning solution for middle school students, accelerates STEAM learning within the classroom and in other learning environments.

Talking Points:

- SPIKE Prime is the go-to STEAM learning tool for middle school educators. Combining standard-aligned curriculum, colorful LEGO building elements, easy-to-use hardware and intuitive drag-and-drop coding based on Scratch, SPIKE Prime offers clear skill progression and ultimately strong learning outcomes for all students. MINDSTORMS Robot Inventor is a robotics toy designed for children 10+ to build, code and play with at home. The experience includes LEGO building elements, easy-to-use hardware and in-app missions for building and coding one of five robots using intuitive drag-and-drop coding based on Scratch.
- SPIKE Prime delivers standard-aligned learning units based on real world challenges that accelerate STEAM learning by consistently engaging students to think critically and to solve complex problems regardless of their learning level. MINDSTORMS Robot Inventor is a playful toy designed for in-home building, coding and playing with robots.
- SPIKE Prime offers comprehensive, online lessons plans incl. learning objectives, building & coding tips, differentiation & assessment opportunities, Math and Language Arts extensions, and career links. In addition, online onboarding flow, support pages and professional development programs are available. MINDSTORMS Robot Inventor is designed for unfacilitated play at home.
- SPIKE Prime is designed for classroom use. With an optimized selection of elements, SPIKE Prime's reduced complexity and easy-to-build models make it ideal for building, coding, and taking apart within 45-minute lesson times. MINDSTORMS Robot Inventor is designed for home play where a child, in their free time and in weekends, can create and play with one of the featured robots – or create their own.
- SPIKE Prime is optimized for a collaborative educational experience where students in pairs or smaller groups work together to learn and solve problems. MINDSTORMS Robot Inventor is designed for a single child to build and code robots at home.
- SPIKE Prime's durable, reusable storage box with lid, sorting trays, stickers, Hub and sensor labels and classroom management tips make it easy to use and ideal for in- and outside the classroom. MINDSTORMS Robot Inventor is packaged in a disposable carton box.

- The SPIKE Prime Core set plus the SPIKE Prime Expansion set is the ideal combination for robotics competitions like FIRST LEGO League Challenge and World Robot Olympiad. Perfect for building a competition-ready driving base, together these sets offer 1,000+ elements including large wheels for better grip, a force sensor for obstacle detection and large motors for greater power. SPIKE Prime’s Competition Ready unit helps those new to competitions gradually learn the basics of building and programming robots using sensors. Participants entering a FIRST LEGO League Challenge competition will be allowed to participate with MINDSTORMS Robot Inventor as all official LEGO elements are permitted, though users may find that SPIKE Prime better equips them to participate competitively.
- LEGO MINDSTORMS Education EV3 is a high-school classroom solution that engages and challenges students to practice their STEM and robotics skills in a ‘near real-world’ environment. For students in grades 9-12, EV3 offers a number of curriculum-aligned lessons based on engaging themes like computer-integrated manufacturing and real-life vehicles. MINDSTORMS Robot Inventor is a robotics toy designed for children 10+ to build, code and play with at home.

Product Differences

	LEGO® Education SPIKE™ Prime	LEGO® MINDSTORMS® Robot Inventor
Target user	Middle School students and educators	Children aged 10-13 years
Experience Focus	STEAM learning tool for collaborative use in- and outside the classroom	Robotics toy for single child play at home
App content & features	<ul style="list-style-type: none"> • 5 STEAM units with 30+ lessons (45-90 min) • Getting Started flow • Model library with digital building instructions • Block extensions 	<ul style="list-style-type: none"> • Missions to build and program 5 models with extensions • Model library with digital building instructions • Block extensions • Remote Control option
Curriculum Standard Alignment	All lessons are aligned to local curriculum standards (25 countries)	No alignment to curriculum standards
Teacher Support	<ul style="list-style-type: none"> • Online lessons plans incl. learning objectives, building & coding tips, differentiation & assessment opportunities, Math and Language Arts extensions, and career links • Online onboarding flow and support page • PD program 	No teacher support materials
App	LEGO Education SPIKE App	LEGO MINDSTORMS Robot Inventor App
Coding languages	Scratch-based blocks and Python text-based	Scratch-based blocks and Python text-based
Supported operating systems	Windows 10, macOS, iOS, Android and Chrome	Windows 10, macOS, iOS (tablet & mobile), Android (tablet & mobile)
Models	30+ models	5 models
Box	LEGO Education storage box with sorting tray and lid	LEGO carton box
Hub	6 input/output ports (LPF 2.0), a customizable 5x5 light matrix, Bluetooth connectivity, speaker, 6-axis gyro, micro USB port for connectivity and charging. Download & run and streaming mode. Yellow and white colored with USB rechargeable lithium-ion battery.	6 input/output ports (LPF 2.0), a customizable 5x5 light matrix, Bluetooth connectivity, speaker, 6-axis gyro, micro USB port for connectivity and charging. Download & run and streaming mode. Teal (green-blue) and white colored with USB rechargeable lithium-ion battery.

Motors & Sensors	Core set- 3 sensors (1 Force, 1 Color and 1 Distance) 3 motors (2 Medium and 1 Large) Expansion set- (1 Large Motor & 1 Color Sensor)	2 sensors (1 Color and 1 Distance) 4 Medium Motors
Number of elements	528 in core set + 603 in Expansion set	949

FAQs

Question	Answer
When will MINDSTORMS® Robot Inventor launch?	MINDSTORMS Robot Inventor will be available from Q4, 2020. An exact date is still to be determined and will be communicated when finalized.
What is the difference between SPIKE™ Prime, MINDSTORMS EV3 and MINDSTORMS Robot Inventor?	SPIKE Prime and MINDSTORMS EV3 are comprehensive learning solutions for middle and high school students that include guided lessons and specific learning outcomes that enable every student to succeed in education and be prepared for future life challenges. MINDSTORMS Robot Inventor is a coding and robotics toy for children 10+ to experience at home, it is not intended as a learning solution.
Are SPIKE Prime, MINDSTORMS EV3 and MINDSTORMS Robot Inventor intended for the same age groups?	SPIKE Prime is for middle school students ages 11 to 14, MINDSTORMS EV3 is for high school students ages 14+ and MINDSTORMS Robot Inventor is intended for ages 10+ for at-home play.
Why should my school buy SPIKE Prime instead of MINDSTORMS Robot Inventor?	SPIKE Prime and MINDSTORMS Robot Inventor are designed for different purposes in different environments. SPIKE Prime is a hands-on STEAM learning solution for middle school students to experience within their classroom. MINDSTORMS Robot Inventor is a playful robotics toy for children aged 10+ to enjoy at home. It does not include lesson plans, specified learning outcomes, teacher support or professional development.
What does the MINDSTORMS Robot Inventor set include?	MINDSTORMS Robot Inventor includes 949 elements, a Hub, 4 Medium Motors, 1 Distance Sensor, 1 Color Sensor and a USB cable.
What platforms is the MINDSTORMS Robot Inventor App available on?	Windows 10, macOS, iOS (tablet and mobile), Android (tablet and mobile).
Which coding languages are available in the MINDSTORMS Robot Inventor App?	The main app experience is using block coding based on Scratch but text-based coding with Python is also possible.
What platforms is SPIKE Prime available on?	Windows 10, macOS, iOS, Android and Chrome

<p>What languages is MINDSTORMS Robot Inventor available in?</p>	<p>MINDSTORMS Robot Inventor App will be available in English (US + UK), Chinese (Traditional + Simplified), Czech, Danish, Dutch, Finnish, French, French (Canada), German, Hungarian, Italian, Japanese, Korean, Norwegian, Polish, Portuguese, Russian, Spanish, Swedish, Ukrainian, Arabic, Vietnamese and Latvian.</p>
<p>What languages is the SPIKE App available in?</p>	<p>The SPIKE App is available in: English (US), English (UK), English (AUS), Chinese, Japanese, Russian, German, Dutch, French, Finnish, Swedish, Norwegian, Danish, Italian, Korean, Portuguese, Spanish, Arabic, Turkish, Polish and Vietnamese.</p>
<p>Is there compatibility with SPIKE Prime and MINDSTORMS Robot Inventor?</p>	<p>While cross-product use is not directly supported, SPIKE Prime and MINDSTORMS Robot Inventor are designed in line with LEGO System in Play, meaning all bricks fit together. The hubs, motors and sensors for both sets use the same LPF2.0 plug system. There are, however, some differences in hub firmware and app coding blocks which can result in instances of non-compatibility or unexpected behavior when paired across products and apps.</p>
<p>In what markets will MINDSTORMS Robot Inventor be sold?</p>	<p>MINDSTORMS Robot Inventor will be available wherever LEGO products are sold- LEGO Branded stores, LEGO.com, Amazon and other resellers.</p>
<p>Is MINDSTORMS Robot Inventor allowed in FIRST® LEGO® League?</p>	<p>Yes, as any official LEGO element is allowed in FIRST LEGO League. MINDSTORMS Robot Inventor can be used in FIRST LEGO League Challenge as long as the robot is programmed to move autonomously and not remote controlled. The SPIKE Prime Expansion Set and Competition Ready Unit are specifically designed with FIRST LEGO League in mind, and the ideal combination for students and teachers who are new to robotics and in need of more formalized training. The final lesson of the SPIKE Prime Competition Ready Unit helps prepare students and teachers for the annual FIRST LEGO League Challenge Robot Game.</p>

<p>What is the recommended solution to compete in FIRST LEGO League Challenge with?</p>	<p>Teams can participate in FIRST LEGO League using just the SPIKE Prime Core Set. However, the SPIKE Prime Expansion Set provides builders with over 600 additional elements that are specifically selected for Competitions. While the MINDSTORMS Robot Inventor set has more elements than the SPIKE Prime Core Set, these are included with the purpose of building the 5-in-1 models. When combined, SPIKE Prime's core set plus expansion set include elements that are particularly useful for competitions for example, large wheels for better grip, a force sensor for obstacle detection and large motors for greater power.</p>
<p>Is MINDSTORMS Robot Inventor allowed in World Robot Olympiad (WRO)?</p>	<p>Yes, MINDSTORMS Robot Inventor will be allowed in WRO, alongside LEGO MINDSTORMS Education EV3, LEGO Education SPIKE Prime and LEGO Education WeDo 2.0</p>
<p>Is LEGO MINDSTORMS Education EV3 retiring?</p>	<p>No, EV3 is not retiring and is available for purchase through Brault & Bouthillier.</p>