

MakerSpace Kits



Makeblock

Shenzhen Maker Works Technology Co., Ltd.

Technical Support: support@makeblock.cc

Consulting Service: edu@makeblock.cc

www.makeblock.com

 : @Makeblock

 : @Makeblock

 : +Makeblock



Note: Images for reference only. Meanwhile, your suggestion will be highly appreciated.

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Maker and Maker Education



“The Maker Movement will have a disruptive impact on traditional educational institutions.”

– Dale Dougherty, founder of Make magazine

“Maker” refers to those who are pleased to practice and share, and to convert their creativities into reality. The creativity has nothing to do with the occupation. “Maker” does refer to an occupation but a bunch of person who is keen on creativity, design, and making.

With the development of maker movement, the maker education comes into being. The maker education stresses on action, sharing and cooperation and focuses on the combination with new technologies, which has become a new approach to cultivate interdisciplinary innovation. The maker education is creating a kind of organization culture, which encourages the students to participate into it and put forward creative solutions for some problems in the real world. The maker education integrates multidisciplinary knowledge such as sciences, mathematics, physics, engineering, art, etc., cultivates the students’ imagination, creativity and problem-solving ability, and helps the students to realize the meaning of “making” and the value of innovation and entrepreneurship. In 2015, the General Office of the State Council put forward the concept of “HackerSpace”. Under the policy of “Public Entrepreneurship & Mass Innovation”, the building of maker space and ecological systems that support maker education will not only provide the makers with opportunity of changing the world, but also help the schools and the society to form an innovative culture, and to reflect on the educational responsibilities. This will greatly impact on the future of Chinese education.



What Is Maker Space

The popularization of the maker culture won't be achieved without the construction of environment, and the development of the maker education also needs a perfect platform. Maker space is such an environmental platform.

On the one hand, maker space integrates various creation-required resources, such as hardware apparatus, processing tool, etc. to provide a good condition for quick realization and verification of the creativity. On the other hand, it is also a platform for the makers to practice, create, exchange, and share.

Therefore, the significance of maker space is to, through the thorough resource allocation, lower the threshold of the public involvement, attract more participants into the reform of innovation and entrepreneurship, and build a sound teaching-practice-platform of the maker education.

Maker space consists of Space and Hardware Resources and Operating Construction:

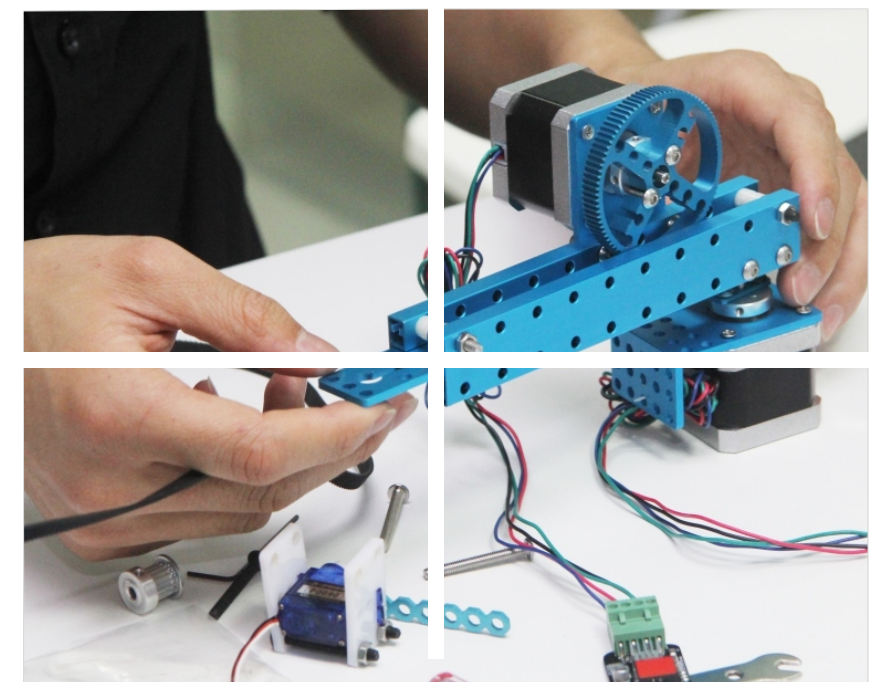
Space and Hardware Resources

Apparatus Area	Including commonly-used basic apparatuses, such as mechanical parts, electronic modules and hardware accessories.	Processing Area	Including various processing equipment, such as 3D printer, laser engraver, drill, milling machine, etc.
Showcase Area	A creativity exhibition platform to show excellent project outcomes.	Working Area	A place for the makers to create and exchange ideas.

Operation

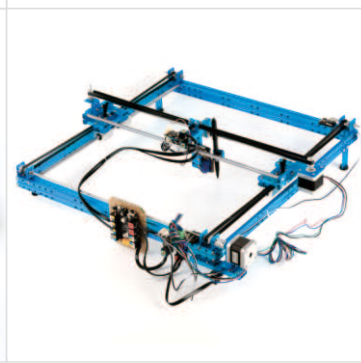
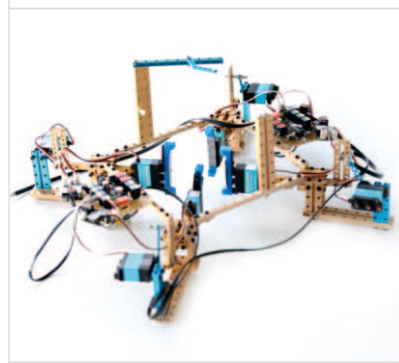
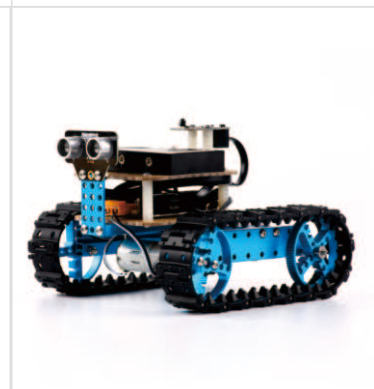
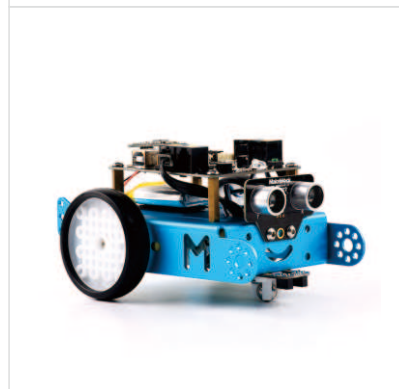
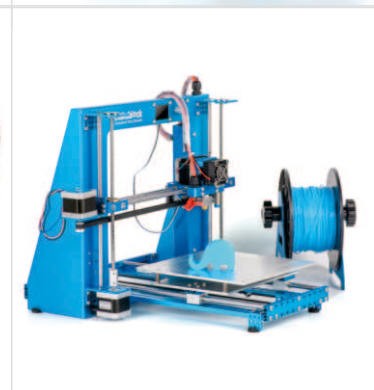
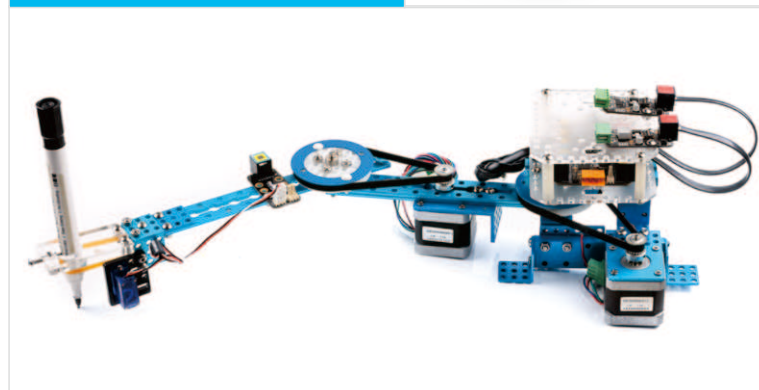
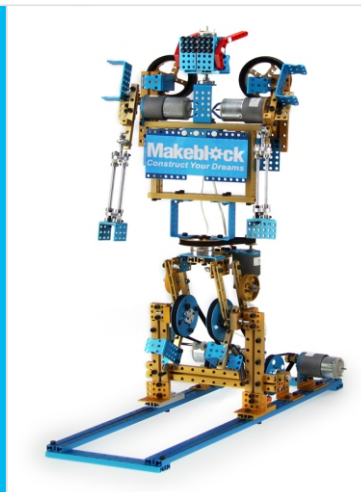
The core mission of maker space is to create space for innovation and to motivate more creative projects, while the core of incubator is to support the growth of entrepreneurship programs. Hence, the operation of maker space should focus on innovation.

By saying the operation of maker space, it means to conduct a variety of courses, activities, sharing salons, projects, and contests on the basis of thorough supporting-hardware resources. The operation mode of maker space is flexible, thru which the maker culture will be greatly promoted and therefore foster more places to get involved.



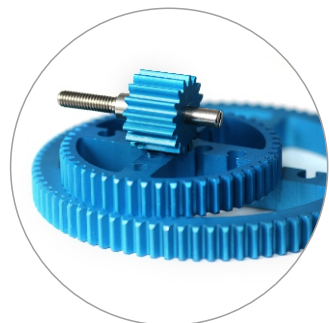


Makeblock is a blocks-building platform including more than 300 types of metal building blocks, electronic modules and software tools, as well as an open-source creativity platform including various classic Robot kits.



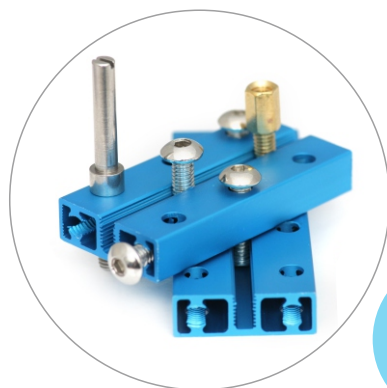
Makeblock system is committed to lowering the threshold of study and use.

At present, Makeblock has been widely applied to various innovation educations, interdisciplinary education (e.g., STEAM education and engineering education) and engineering experiments, including some engineering projects of Microsoft, Intel and Google, design of various product prototypes, even artistic creation.



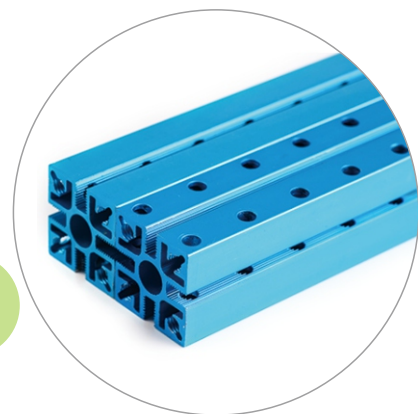
High-strength aluminum alloy material

Most of Makeblock parts are made of 6061 aluminum alloy, which is bright in color, reliable in quality, and sturdy in construction.



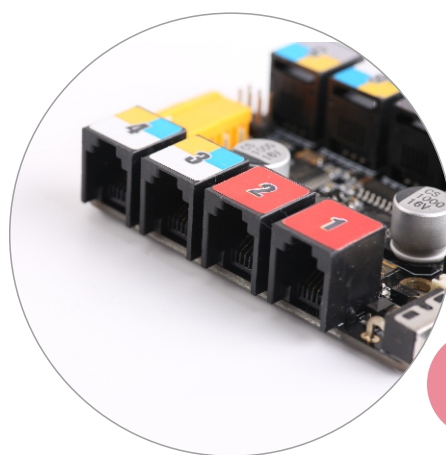
Unique thread groove design

Makeblock's well-designed thread groove makes you easier to screw at any position without any nuts, so the parts can be connected flexibly, with endless variations like LEGO building blocks. Infinite part combinations support various modes of transmission and motion to meet various needs.



Open compatibility

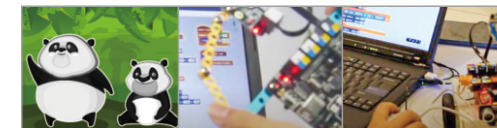
Makeblock is compatible with various common industrial standard components, e.g., bearing, timing belt, stepper motor, etc., and part of LEGO building blocks, so you are able to select your required parts within wide range at low cost.



Lowering the threshold of entry

Unique RJ25 and color code system, easy to be connected.

We have developed Scratch2.0-based mBlock graphic programming software, which realizes the perfect combination of Scratch and Arduino and opens the door towards the physical world.



Makeblock system also includes plenty of teaching cases with detailed instructions and course data.

Through Makeblock, the makers can pay more attention to their creativity, without any hindrance from technical threshold.



Makeblock and MakerSpace

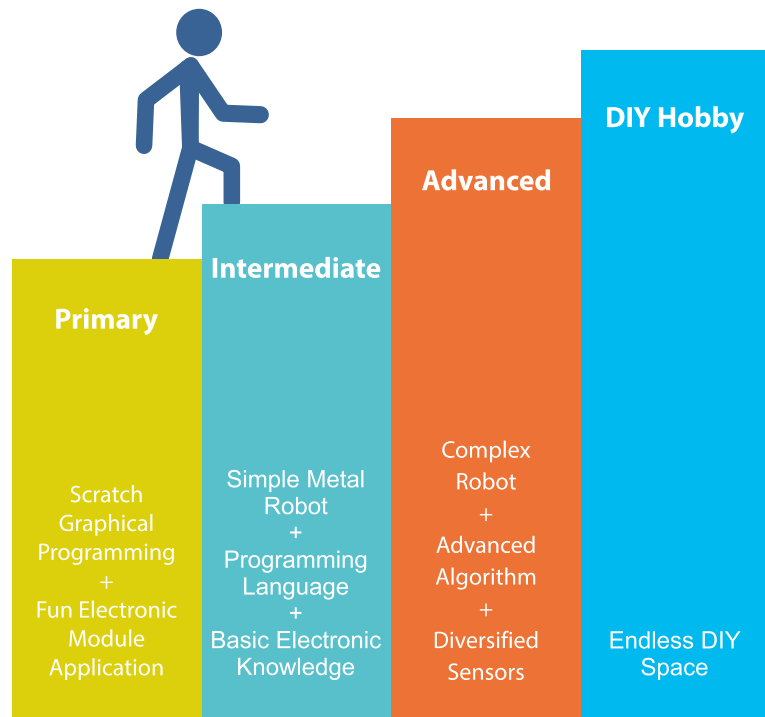
Work Hard on Education; Pure Making, Pure Fun

In recent years, maker space has got developed rapidly. Many institutions like schools began to build their own maker space. But most of them had to deal with one issue: how to build and operate the maker space.

We found that the key points of maker education and maker space are the richness of apparatus, the threshold of entry, and the integrity of course system.

⚙️ An ideal apparatus platform should be open and standard, and should cover machinery, electronics and software, so the platform can support the makers to create at will.

It is the product concept of Makeblock's to enable our users to create as they want to the greatest extent. Makeblock provides quasi-industrial-grade mechanical technology and open-source electronic system that realize advanced algorithm requirements and precision control, so the creativity can be achieved without the limitation of the apparatuses. Moreover, Makeblock also dramatically lowers the threshold of entry of learning the robots, meaning even kids at primary school can enjoy the fun of making.



Therefore, Makeblock is a maker education platform to promote the growth of the makers.

⚙️ Makeblock is a maker education platform to promote the growth of the makers.

Makeblock is committed to creating the most complete hardware-apparatus-platform. To do that, we discussed with the famous teachers in the maker education repetitively, investigated many other maker spaces, and participated in various exhibitions as a maker; we held Maker marathons once every month and also organized an international maker contests - Maker Open.



SUSTC Workshop



Maker Open Site



International MakerSpace Contest Site

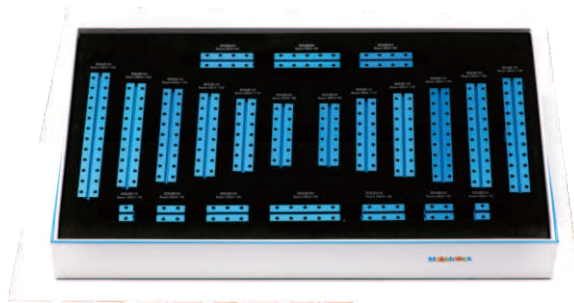
After 5 months of research, analysis, various inner tests, and re-adjustment of the ratio of resources, we've finally launched our own **MakerSpace Kits**.

MakerSpace Kits

Makeblock MakerSpace Kits are building-block kits for the maker education.

- Include 6 types of apparatuses, with 11 types of kits in 17 boxes.
- Scientific parts proportion and flexible spatial scheme configuration are suitable for various age groups and universities with various budgets.
- Specially-designed box for better storage
- Provide complete product instructions, abundant operating scheme and workshop cases at various difficulty levels.

The combination of software and hardware serves the campus MakerSpace better.



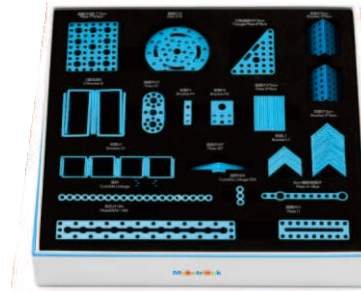
Beam 0824 Structural 01

Includes various sizes of Beams 0824 (dual-hole beam) for building mechanical system framework, base, track bracket, etc. The sectional dimension of Beam 0824 is 8mm x 24mm, length varying from 16mm to 192mm. Via the through holes on the beam, thread groove in the middle and threaded holes on the end face, it can be connected with various lengths of Beams 0824, Beams 0808, or brackets to build the basic structure, and also be matched with the slider to build the linear motion.



Beam 0808 Structural Parts 02

Includes various size of Beams 0808(single-hole beam) for building mechanical system framework, base, etc. The sectional dimension of Beam 0808 is 8mm x 8mm, length varying from 16mm to 192mm. Via the through holes on the beam and the thread grooves in the middle, it can be connected with various lengths of Beams 0824, Beams 0808, or brackets to build the mechanical framework.



Connecting Fittings 03

Include right-angled, U-shaped, P-shaped, circular, triangular connecting sheets and connecting blocks. The holes on the bracket can be matched with the beam to build the system framework, and also can be matched with the bearing to build the shafting base, motor's supporting base, etc.



Shaft Type Drive Parts 05

Include various transmission parts, positioning parts, etc., such as various lengths of shafts (diameter: 4mm/8mm), bearings, bearing brackets, couplers, etc. Shaft Transmission Part is to support and rotate the parts, transmit torque, change the rotating direction of the shaft. It can be used with gears, timing pulleys, etc.



Basic Drive Parts 04

Include timing belt transmission, gear transmission, and thread transmission. The timing belt transmission series provide various lengths of stable linear transmission with high precision. The gear transmission series provide acceleration and deceleration differences with different transmission ratios. The thread transmission series provide linear motion with high precision, big transmission ratio, and large torque.

Category One

Beam 0824, Beam 0808, Connecting Parts

Include various lengths of Beams 0808 and Beams 0824, and various shapes of connecting sheets and connecting blocks, which are applied to build mechanical system framework, base, track bracket, etc.

Category Two

Basic Drive Parts, Shaft Type Drive Parts, Advanced Drive Parts

Include some common transmission series: shafting transmission, gear transmission, large-torque sprocket transmission, high-precision timing belt transmission, big-transmission-ratio thread transmission, etc.



Electronic Modules **07A**

Includes Orion main board, sensors (ultrasonic sensor, light sensor, sound sensor, temperature sensor, gyro sensor, etc.), and display modules (RGB lamp, Nixie tube, etc.), and can be matched with mBlock software programming to realize the interaction with the physical world.



Electronic Modules **07C**

Includes Orion main board, sensors (ultrasonic sensor, light sensor, sound sensor, temperature sensor, gyro sensor, etc.), and display modules (RGB lamp, Nixie tube, etc.), and can be matched with mBlock software programming to realize the interaction with the physical world.



Hardwares and Tools **06**

Include various screws (socket cap screw, cross flat-head screw, headless screw, etc.), fasteners (common nut, lock nut, rivet, stud, spacer, etc.), and assembling tools (screw driver, wrench, cable tie, G-clamp, etc.), which are to fix and connect individual part together.



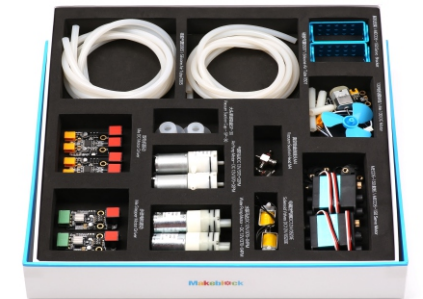
Electronic Modules **07B**

Includes Me Orion main board, sensors (ultrasonic sensor, light sensor, sound sensor, temperature sensor, gyro sensor, etc.), and display modules (RGB lamp, Nixie tube, etc.), and can be matched with mBlock software programming to realize the interaction with the physical world.



Motor Modules **08A**

Includes DC motor, stepper motor, servo motor, encoder motor, and driver modules, which can provide power output for the system. The diversified functions can meet various requirements on accurate position-control, speed control, large torque, etc.



Motor Modules **08B**

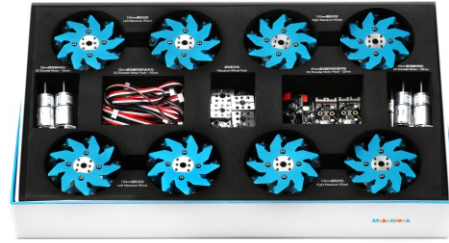
Includes DC motor, stepper motor, servo motor, encoder motor and driver modules, which can provide power output for the system. The diversified functions can meet various requirements on accurate position-control, speed control, large torque, etc.

Category Three Hardwares and Tools

Include various screws (socket cap screw, cross flat-head screw, headless set screw, etc.), fasteners (common nut, lock nut, rivet, stud, spacer, etc.) and assembling tools (screw driver, wrench, cable tie, G-clamp, etc.), which are to fix and connect individual part together.

Category Four Motor Modules Pack

Include DC motor, stepper motor, servo motor, encoder motor and driver modules, which can provide power output for the system. The diversified functions can meet various requirements on accurate position-control, speed control, large torque, etc.



Motion Parts 09B

Includes Mecanum wheels, caster wheels, timing pulleys, tyres, tracks, etc., and can be used as the final actuator, e.g., wheel-type car, track car, etc.



Advanced Drive Parts 10B

Include high-precision linear slider, linear motion shaft, motion block, timing belt, thread transmission, etc., and large-torque sprocket transmission, and is equipped with the stepper motor for accurate position-control.



Expansion Packs for Large Parts 11B

Includes Beam 0808, Beam 0824, and Beam 2424 (with the length of more than 254mm), slider, linear motion shaft, etc., and can be used to build large system framework, base, actuator, etc.



Motion Parts 09A

Includes Mecanum wheels, caster wheels, timing pulleys, tyres, tracks, etc., and can be used as the final actuator, e.g., wheel-type car, track car, etc.



Advanced Drive Parts 10A

Include high-precision linear slider, linear motion shaft, motion block, timing belt, thread transmission, etc., and large-torque sprocket transmission, and are equipped with the stepper motor for accurate position control.



Expansion Packs for large Parts 11A

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Category Five

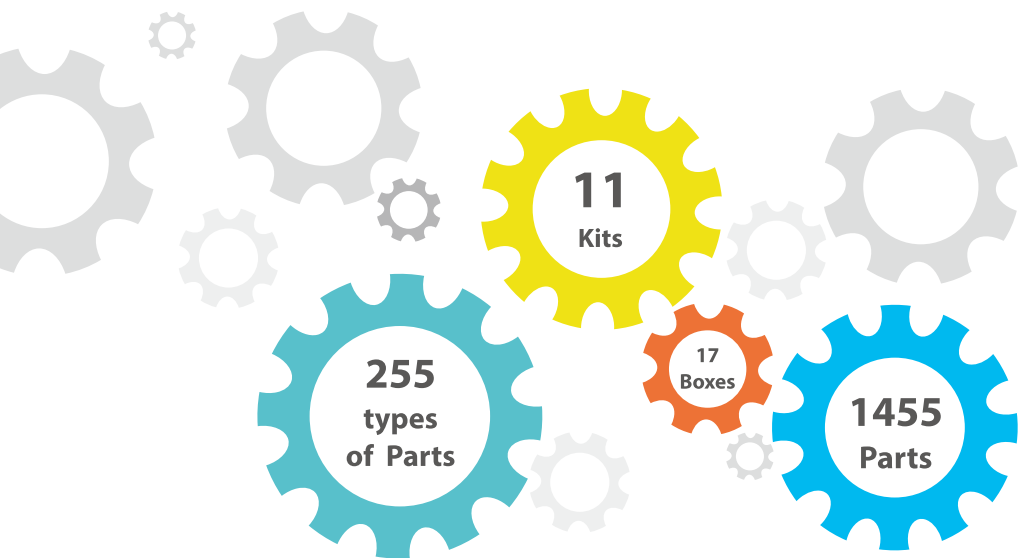
Mecanum wheel, timing pulley, caster wheel, tyre

It can be used as the final actuator, e.g., wheel-type car, track car, etc.

Category Six

Electronic Modules Pack

Includes Orion main board, sensors (ultrasonic sensor, light sensor, sound sensor, temperature sensor, gyro sensor, etc.), and display modules (RGB lamp, Nixie tube, etc.), and can be matched with mBlock software programming to realize the interaction with the physical world.



Box No.	Name	Type	Qty.
01	Beam 0824 Structural Parts	12	88
02	Beam 0808 Structural Parts	13	92
03	Connecting Fittings	18	152
04	Basic Drive parts	25	162
05	Shaft Type Drive parts	22	208
06	Hardwares and Tools	34	~
07	Electronic Modules	44	147
08	Motor Modules	23	62
09	Motion Parts	30	394
10	Advanced Drive Parts	24	108
11	Expansion Packs for Large Parts	10	42
Total		255	1455

The packaging box in this kit is more than a casing.

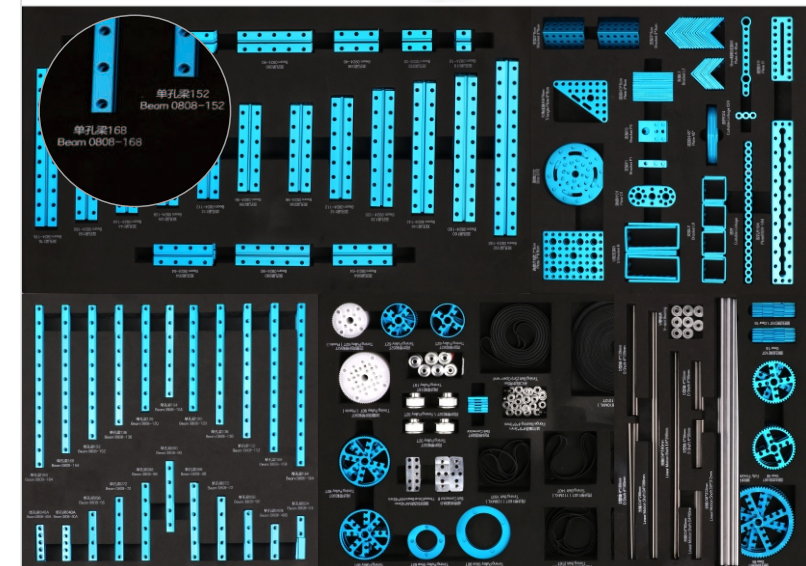
To provide a packaging box that helps solve the problems of storage, such as disorder, missing, scratches, etc, we have modified the packaging scheme 19 times and changed the lining 8 times.

The product name is marked beside each part for classified storage and easier searching. It will help students to form good habits in cherishing the apparatus, keeping it by category and placing the apparatus orderly.

Its lining uses eco-friendly EVA material for protecting all the apparatus effectively. With the half-heel design, it is non-deformed, elastic and easy to be stored.

Demonstration of Overall Effect

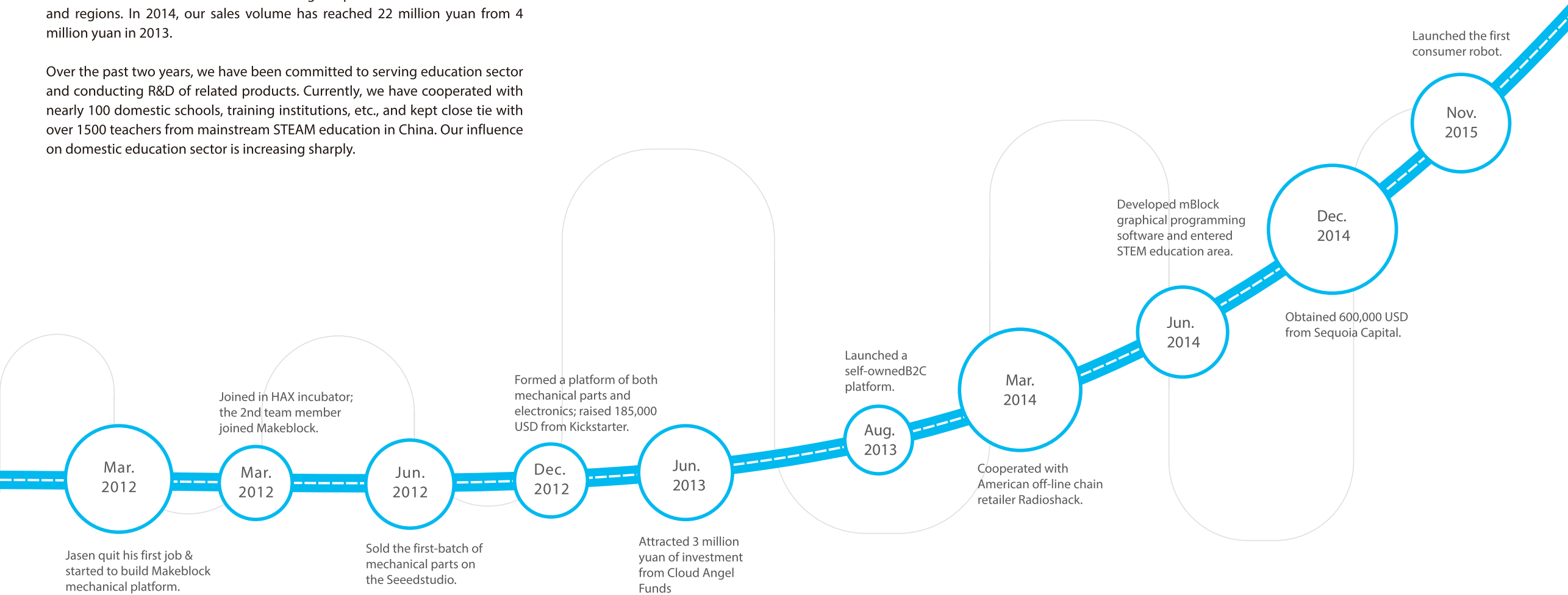
Notes: The products don't include the display rack. A complete kit is shown in the right picture.

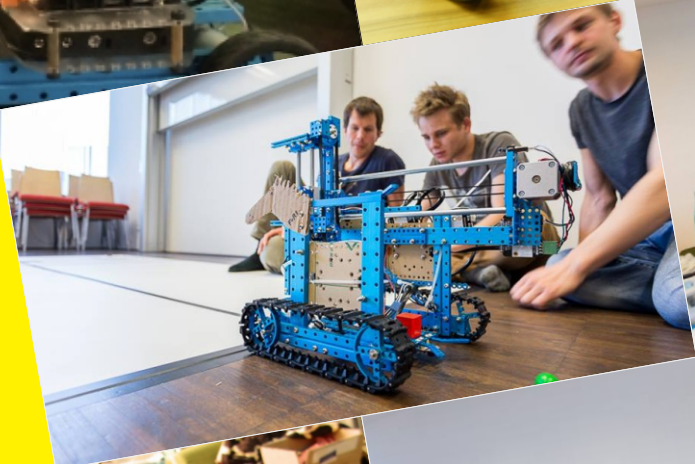
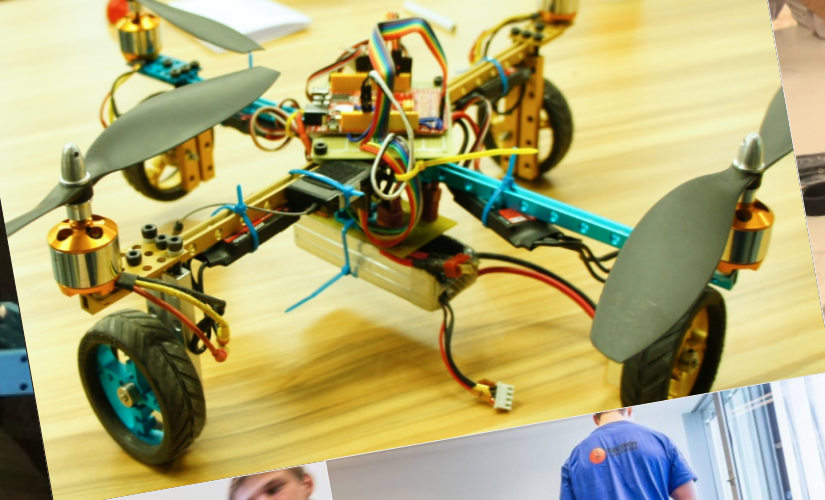
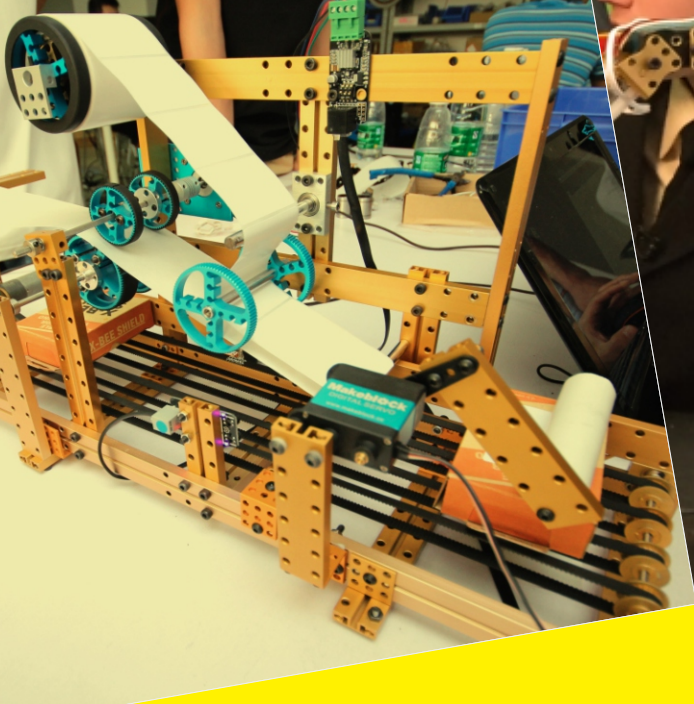


Shenzhen Maker Works Technology Co., Ltd. is a hardware venture company in Shenzhen. Our main brand **Makeblock** is a block- building platform based on open-source hardware, helping people to realize their creativities.

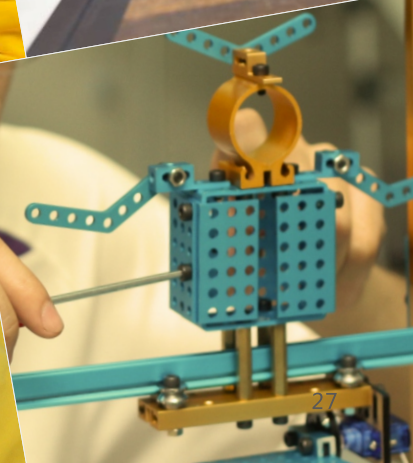
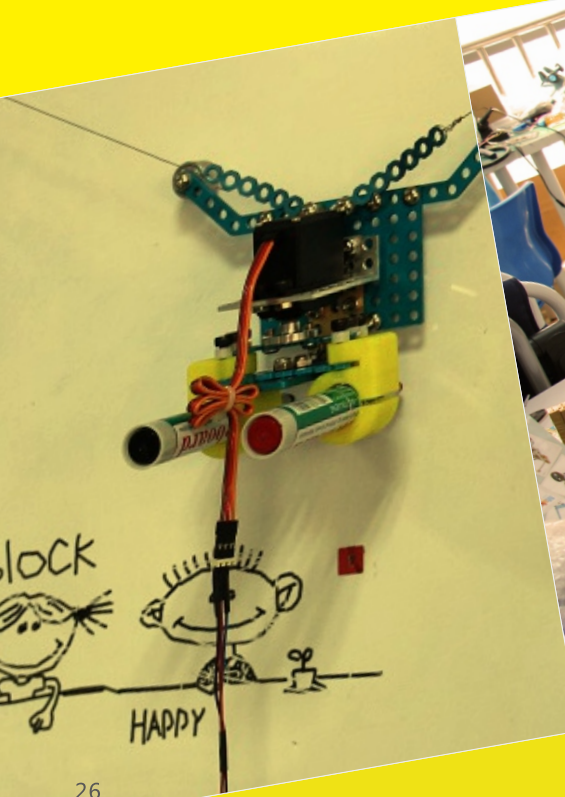
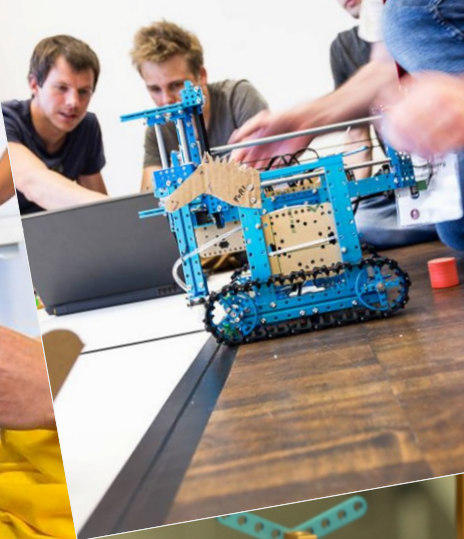
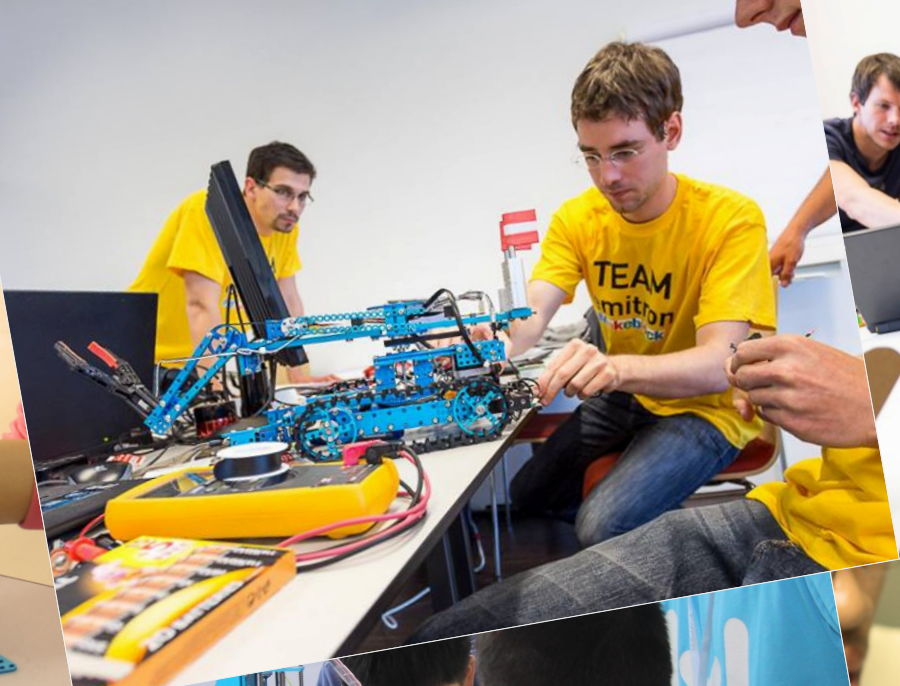
The Maker Works has world-class R&D ability, R&D personnel accounting for 40% of total staff. The self-developed products from Maker Works has exceeded 400 categories, with an increase of more than 30 categories per month. More than 70 distributors are selling our products to over 30 countries and regions. In 2014, our sales volume has reached 22 million yuan from 4 million yuan in 2013.

Over the past two years, we have been committed to serving education sector and conducting R&D of related products. Currently, we have cooperated with nearly 100 domestic schools, training institutions, etc., and kept close tie with over 1500 teachers from mainstream STEAM education in China. Our influence on domestic education sector is increasing sharply.





Besides the mainland China, Makeblock has been applied in more than 40 countries, such as the USA, Europe, Taiwan, Hong Kong, etc. Moreover, we have cooperated with various overseas educational institutions, such as Utah State University, University of Salzburg, University of Hong Kong, etc.



Shenzhen Maker Works Technology Co., Ltd. will continue to invest into domestic market, enrich parts system, and perfect our curriculum system on the basis of an engineering-block-building platform. Meanwhile, we will also pay more attention to the education area with view to making contribution to Chinese education.



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