

 THE REAL STEM EXPERIENCE®

Engino®



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1.5-3

 baby
engineers

3-6

 junior
engineers

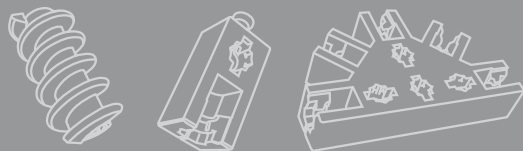
6-9

 young
engineers

9+

 master
engineers

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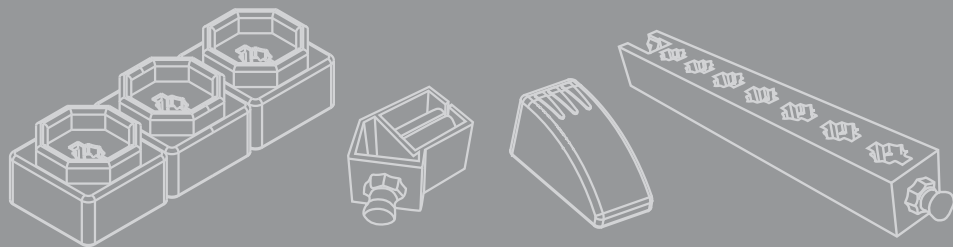
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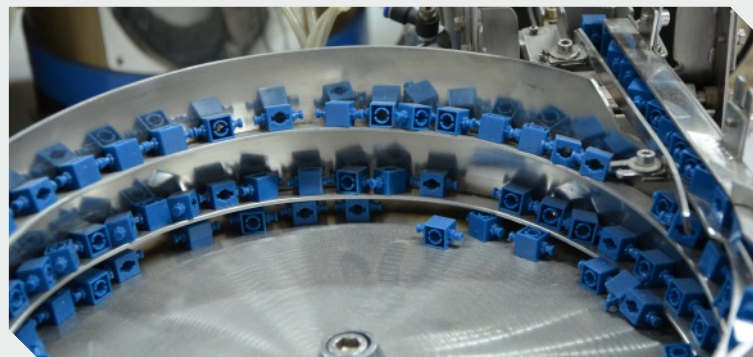
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Company History

A Toy System Emerging from Education

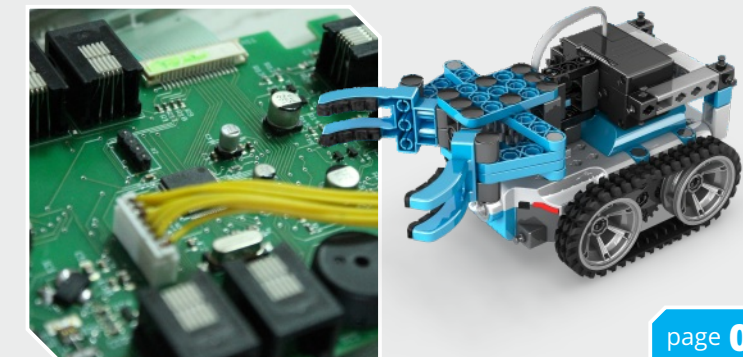
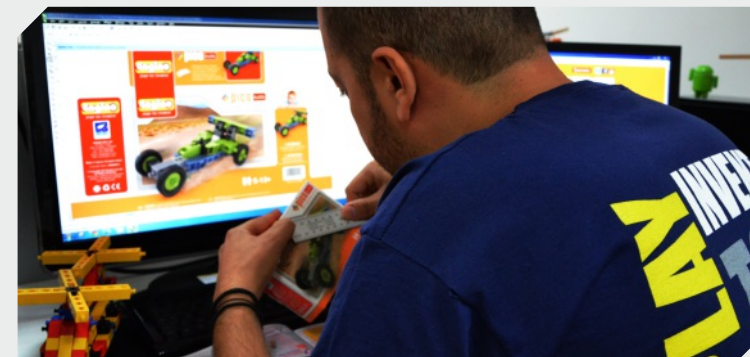
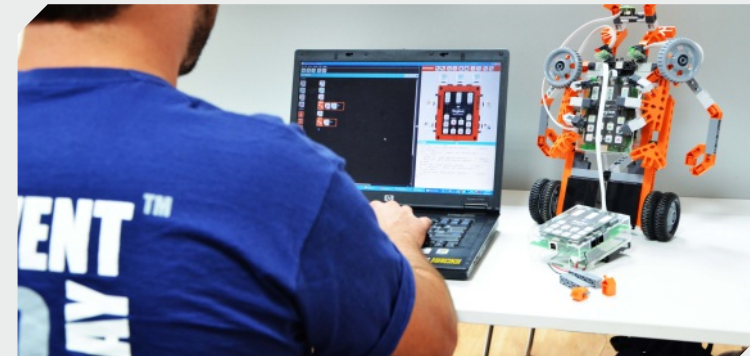
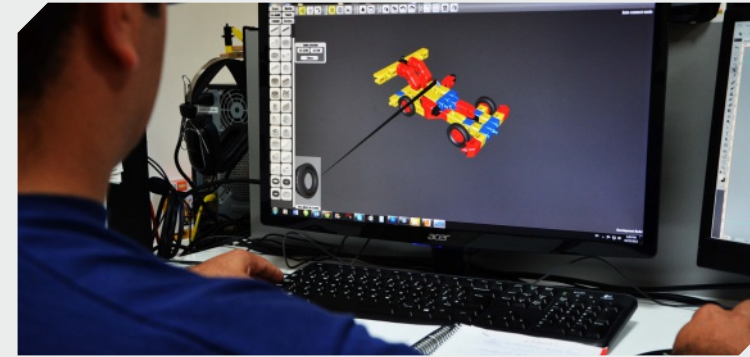
Engino-net Limited was founded in 2004 by Costas Sisamos in Cyprus. With degrees in Mechanical Engineering and Education, Costas worked for 10 years in Primary schools teaching Design & Technology. With a vision to inspire his students to become better problem solvers and future innovators, Costas started designing a new system of modular connectors that would enable students to build fast and easy fully functional technological models. The award of research capital by European Union supported the first 3 years of development and the first ENGINO® sets were launched in 2007 attracting the interest of international toy buyers and educational specialists. The patented ability of the system to snap fit on multiple locations while maintaining simple manufacturing methods was a feature that unleashed great potential. Since the launch, the system has received several local and international awards, while the company's R&D team continues to develop new innovations taking ENGINO® to the 3rd generation of construction toys. Now, with a product range of more than 60 different sets, ranging from simple structures and mechanisms to solar energy sets and wireless robotics, ENGINO® is one of the fastest growing companies in the field of STEM & Robotics. The company is one of the very few in the industry that has invested significantly to establish a European fully-automated factory, introducing vertical integration, from conception to manufacturing and retail.



Research & Development

Transforming Innovative Ideas into Successful Products

Since its inception, ENGINO® has been focused on innovation and creativity. From drawing board to market shelves, several skills are required and a team of exceptional professionals has been assembled. This includes academics, engineers, product designers, illustrators, educational specialists and marketing experts. All research is carried out in house which assures effective communication between the team members and faster development time. In fact R&D has been a key element to ENGINO®'s success, with multiple research projects running simultaneously. Several patents and industrial designs have been issued and others are still pending. Our factory is equipped with the most modern software and CNC machinery to prototype and create new parts, while everything is tested vigorously to meet the highest standards of quality and functionality.



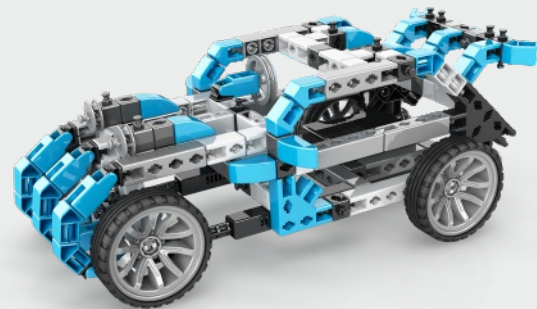
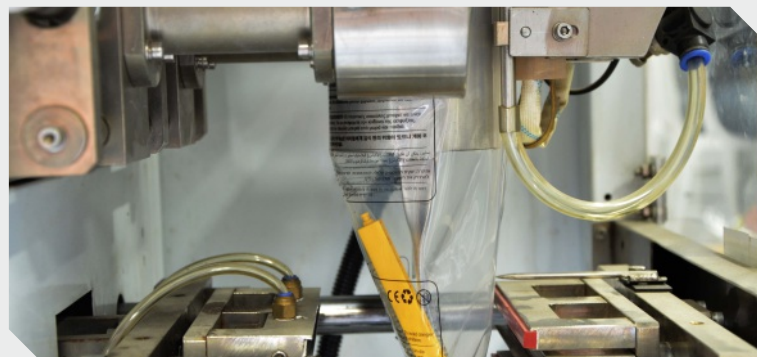
Manufacturing

Producing Effectively in Europe

Since 2012, all manufacturing of ENGINO® has been taking place in Europe, Cyprus, at our own fully automated factory. The factory has 3 sections: tool making, injection molding of plastic parts and packaging, allowing smooth control of the entire production process. The implementation of lean manufacturing methods and high level of quality control has led to the minimization of the production cost while also assuring fast lead-times and consistent quality.

Assuring our Quality

At ENGINO®, safety of kids is our top priority. Our organization, to guarantee compliance with the latest toy safety standards, implements very tight design and production processes, controlled through a vigorous ISO9001 management system. All our products are tested every year for mechanical and chemical properties and are certified by internationally approved labs for EN71 part 1-3, ASTM F963-17, CPSC, Pthalates, EN62115, PAHs, SVHC and many more.



Brand Awards

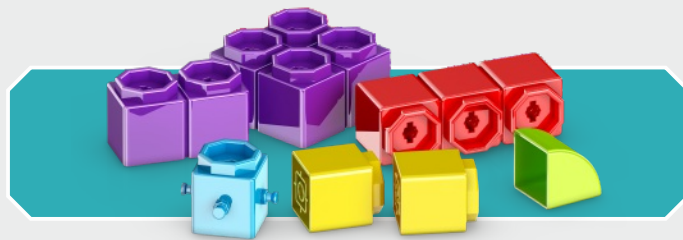


ENGINO® Building System

The ENGINO® System has now evolved into 4 Sub-Systems

The “**Qboidz**”, which consists of cube-like bricks for very young children starting at the age of 1.5, continued with the addition of special connecting rods for 3+, the “**Classic**”, which is the original ENGINO® for kids of age 6 and above, and the more advanced “**Mechanics**” with precision engineered technical parts and gearing systems for children over 9 years old.

1.5+ Baby Qboidz



3+ Qboidz



6+ Classic

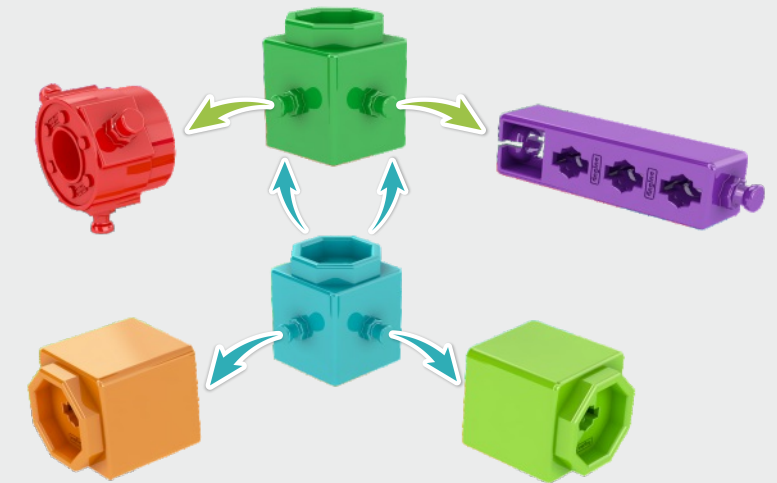


9+ Mechanics



1.5+ 3+ Baby Qboidz / Qboidz Building System

One of the main reasons behind the inception of “QBODZ” was the inability of children under the age of 6 to linearly assemble the “Classic” ENGINO® components. Extensive research with cognitive psychologists and developmental experts showed that children of such younger age, do not have adequate skills for a two-step side-lateral connection and neither the abstract reasoning to comprehend it. An innovative solution was developed in 2016 by designing a new type of “end-receptor”, a joint that would allow direct linear assembly with a single, one-step snap action. The new system became an immediate success, enabling children even from the age of 3 to achieve the ENGINO® snap-fit connection! Together with these rods, a library of cubic blocks has been developed which further lowers the pay-age to 1.5 years for babies. Like most traditional large-scale brick systems, toddlers could stack one block over the other and gradually engage into more complex building. The cubic shape also inspired the name “QBODZ”!



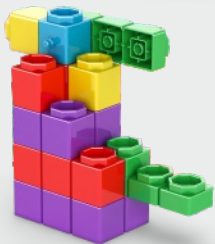
What differentiates “Qboidz” blocks from any other brick systems, is the incorporation of the original ENGINO® snap-fit geometries on the cube’s body! By selectively embedding the ENGINO® bi-directional receptors and the mushroom shaped plugs on the block’s sides, the possibility to connect rods onto blocks became a reality. Our QBODZ system is perhaps the only constructional toy that grows with the child, respecting his or her needs at every stage of their development, from the age of 3 to 6. Our theory which concurs with latest neurological research- is that by playing with blocks signals are sent to the brain and activate a particular area which relates to spatial perception and three-dimensional thinking. By stacking bricks, one section of this area is activated. More and more neurons are stimulated as children play and reconfigure their blocks.

At the age of 1.5 to 3, stacking bricks is one of the healthiest forms of play for kids. However, as they grow older, different levels of stimuli are needed to enhance their spatial perception. Traditional bricks only allow stacking, limiting brain activation to the particular region only. However, with QBODZ, side-building is possible, adding complexity to the creative process. This complexity activates adjacent neurons not previously triggered and create new neuron connections called synapses.

There are critical periods during a child’s development which favor specific neural connections. At this age of Junior Engineers, these brain cell synapses are permanent, much like when learning our first language. By engaging the child in a more complex constructional play, it is possible to establish such new neuro pathways which relate not only to Spatial awareness but also to Engineering Creativity and Innovative thinking. At ENGINO® research center we call these stages **Levels of Dimensional Thinking™**.



One-dimensional Thinking - Stacking blocks vertically: Stack the patented cubic blocks (named Qboidz) vertically as with traditional brick systems.



Two-dimensional Thinking - Connecting blocks to the side: Connect the Qboidz blocks sideways to explore the 3D space, increasing building complexity while further developing hand-eye coordination, dexterity skills and spatial perception.



Three-dimensional Thinking - Combining blocks with beams: The next step is to fine tune the skills acquired in the previous level. Qboidz blocks can connect to a range of beams designed with a plethora of male and female connecting nodes in order to allow for more detailed constructions. These beams require a higher force of assembly, challenging older preschool children.



Forth-dimensional Thinking - Compatible with Engino system: The Qboidz parts, both blocks and beams, have embedded in their design the same geometries as the standard ENGINO® system that is suitable for older children, aged 6+. This ensures a smooth transition from one level to the next and enables full compatibility between a wide library of parts. By allowing growing children to combine these parts and work on a finer grid system, they can create more complex technical models.



Fifth-dimensional Thinking - Coding with robotic parts: There are three generations of construction toys. The 1st was that of building structural models. The 2nd was the inclusion of mechanical elements that added motion to the models. New technologies introduced the 3rd generation, that of robotized constructions. The compatibility of the Qboidz system with ENGINO® extends to programmable controllers and sensors! This step into technology helps students acquire 21st century skills and learn coding through interdisciplinary STEM challenges.

6+ Classic Building System

The ENGINO® classic building system is perhaps the most advanced and versatile three dimensional construction toy system in the market today. The patented design of the parts allows connectivity of up to 6 sides simultaneously, while the unique extendable components lead to builds that were previously unthinkable, unleashing children's creativity and imagination. The progressive building capability from simple to advanced is a consistent characteristic of all ENGINO® solutions, from tangible plastic parts to lesson plans and software, and it is at the core DNA of our pedagogical philosophy.



1. Building in one direction...

The ENGINO® rods can be connected in-line without the need of an intermediate connector, almost reducing to half the quantity of parts required to build models as compared to other systems. This is because the connecting plug's geometry is already embedded within each rod. The biggest advantage in requiring half the number of parts, besides simplicity, is the fact that students will need half the time to build their model, saving time to be allocated for being more creative by trying their own ideas.

2. Building in two directions...

The same rods which can be assembled horizontally in-line can also be connected vertically sideways! The unique plug geometry can click on any of the bi-directional side-holes of the rods, meaning that students can build without needing a new component- in two directions! Even though this is a big advantage by itself, the biggest innovation is that the rods can snap-fit on both sides of the rods simultaneously, something that greatly enhances the expandability of the system and reduces even more the number of parts needed to construct a model.

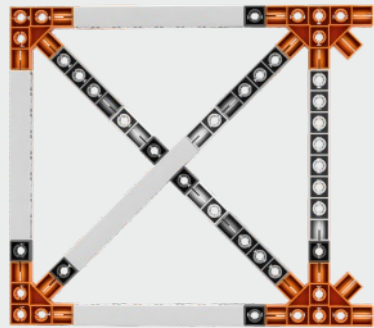
3. Building in three directions...

The Classic ENGINO® system consists of "rods" and "connectors". In essence, these "connectors" share the same geometrical designs as the rods, establishing a multiplier effect that enables a further reduction in the number of parts needed to construct a model. In most cases this means 4 times less parts are required to build a model as compared to other building systems. In effect, this means that students can not only create a model 4 times faster, but they can spent 4 times less effort to modify and experiment!



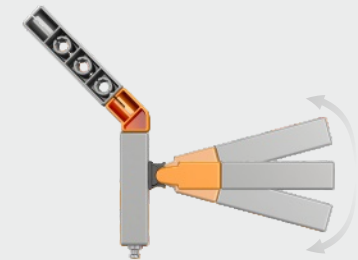
4. Building in fixed angles...

Modelling real-life machines and buildings requires also connecting components at an angle other than 90 degrees. The system includes 45-degree angular parts, which with the same ease can snap-fit on the rods and connectors to create more complex models.



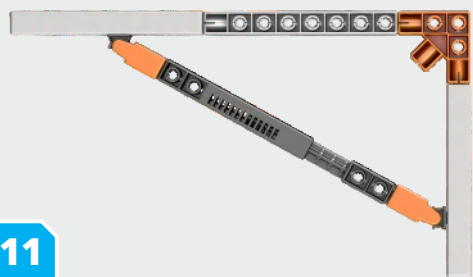
5. Triangulating...

To make a frame stronger a technique called Triangulation is used, something which is clearly visible in many large bridges and wooden structures. With ENGINO®, triangulation is very easy to achieve, ideally with side-lengths of 15 units. Converting a structure from a flat two-dimensional shape to a three-dimensional one, for example adding pillars on floors when making a model of a house, is straight forward with ENGINO®. Simply snap a rod directly on the ELBOW or TEE connectors! These provide a change in the plane of building, without having any elements protruding, allowing also easy modification at any time without having to substitute these connectors with different ones.



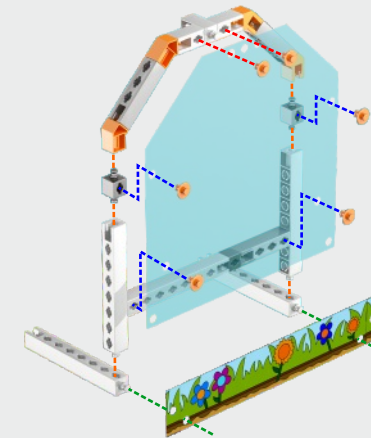
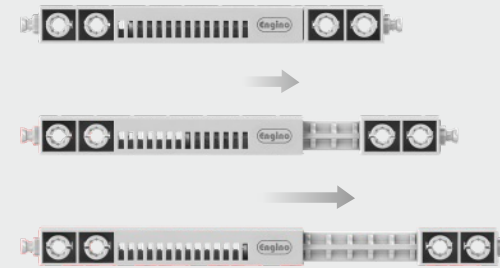
6. Connecting in every angle...

The potential of the system is unleashed by “cloning” the innovative geometries to pivoted joints. A specially designed component acts as a pivot (called internally “swing rod”) and allows any angle of the 3D space to be created, not restricted by 45 or 90 degrees!



7. Connecting everywhere...

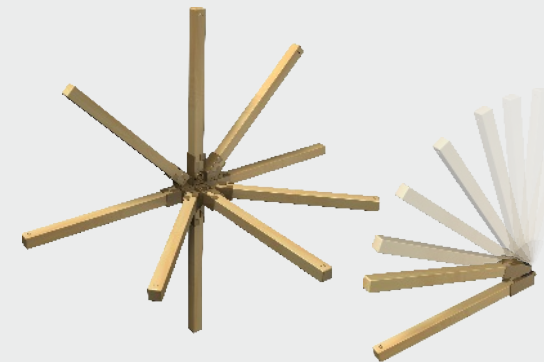
ENGINO® rods can connect one after the other and achieve longer sizes. However, these are restricted by the size of the smallest part, our unit dimension of 12.7mm. But how can a child build creatively when they want to freely triangulate a model, and the hypotenuse length is not matching the unit's multiple? This is an unsolvable problem, and no building system has so far managed to solve it. Based on Pythagoras theorem, we should cut short a component to reach the required length, but this is of course not possible.



At ENGINO® we like to keep things simple for kids and assign the hard, engineering problems to our researchers. An innovative solution has been developed: our **extendable rods**. With just 2 pieces that interlock, kids can twist and extend creating any length possible! This amazing feature, when combined with the pivoted joints, can lead to the creation of any triangular shape and to constructions that were previously inconceivable! The extendable rod replaces the need of numerous other components and maximizes the building capabilities of the system.

8. Connecting DIY surfaces...

The assembled components of ENGINO® can have a flush surface with no protrusions. This has been designed on purpose for a very unique and specific reason: To allow children to cover their models with flat surface panels without obstructions. These panels can be from paper, acrylic or wooden materials, which kids can draw, paint and cut to their own ideas, making the models more realistic. This feature is the first step into the maker-space era providing a bridge between construction toys and real DIY projects. Surfaces can attach very easily on ENGINO® models by using the latest designed lock-pins, which secure the panels on the Engino rods with a simple click!



9. Driving the Maker-space revolution...

The original problem ENGINO® tried to solve, was how to build models made from wooden dowels, for -what back in 2004- was a “Design & Technology” classroom. This inspired the design of plastic modular wood connectors that could be used either as part of a toy or as consumables in DIY projects. The latest trends in education, with the Maker-space revolution, has created a new need for DIY building materials, making the ENGINO® wood connectors the ideal system to craft models with ease. These components are fully compatible with all other ENGINO® parts as they share same connecting features. This helps create hybrid models that combine plastic parts with wooden beams which can be cut to any size by students or hobby engineers. These wood connectors can also integrate with the DIY surfaces and their lock-pins, empowering open-ended projects for children and adults alike!

9+ Mechanics Building System

By 2012, ENGINO® had already started investing heavily in further research to develop our 3rd generation of construction toys. These are called in STEM academic circles Robotized Construction Kits. Such advanced kits require high-precision mechanisms and more robust constructions that could remain assembled and functioning even after vigorous use, such as in robotic competitions.

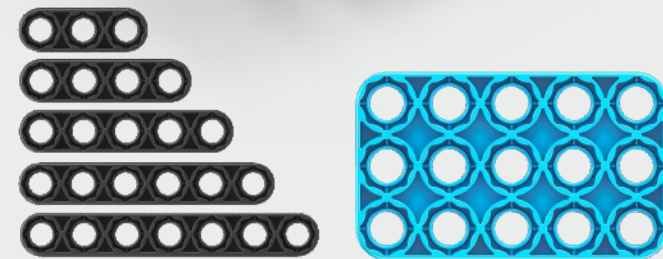
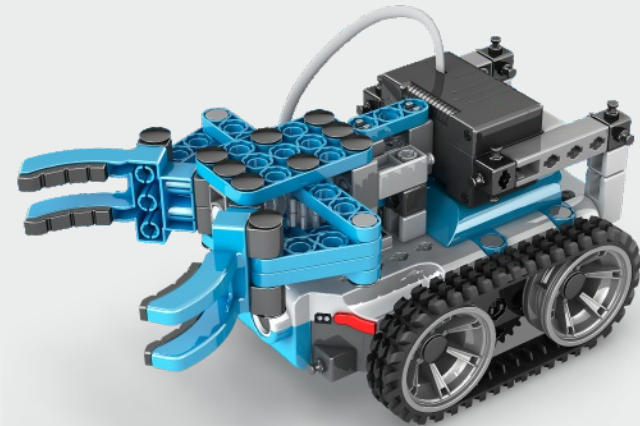
The ENGINO® philosophy prioritizes ease of play, creativity and pedagogy, rather than technical modeling. But, as more and more electronic controllers and sensors kept being added to the ENGINO® robots, the need for a specialized system became evident by 2017. That was when a big research project started to design, prototype, test and bring into production a new technical system that would still be abiding to our pedagogical values.

Our new **Mechanics System**, launched and patented early 2021, consists of a library of components that are working in conjunction with the Classic ENGINO® parts, preserving as much as possible the attributes of creativity and reconfigurability of the original system.

Students from the age of 9 can actively engage in advanced model's creation and dig further into the secrets of Science and Technology. As they grow older, they can use more specialized components to develop elaborate mechanisms that simulate real-life machines and robots. The Mechanics library includes around 100 different components, including new wheels and axles, beams and connectors and some impressive locking technologies, all compatible with the ENGINO® Classic parts!

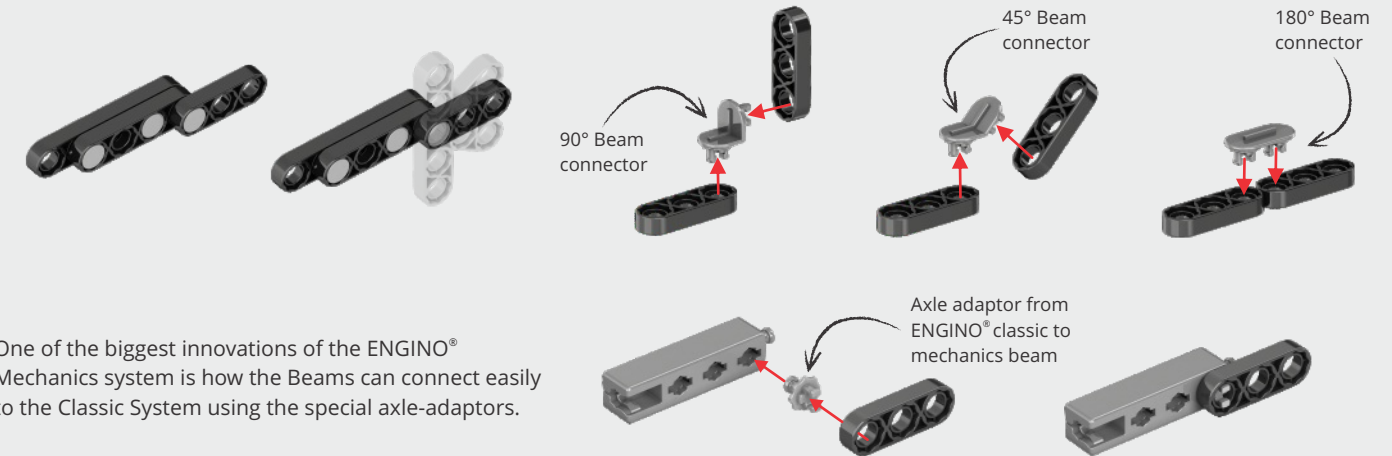
How the System Works

To be able to construct more robust models, the Mechanics Beams are half-unit thickness as compared to the Classic Rods (6.2mm). They have simple cylindrical holes that allow a thick, strong axle to pass through and rotate freely with minimal friction. The unique design of these beams is to incorporate an octagonal base at every hole, which allows locking every 45 degrees when needed. Beams help create a strong structural frame and plates add robustness by providing more compact spacing.



1. Connecting the Beams...

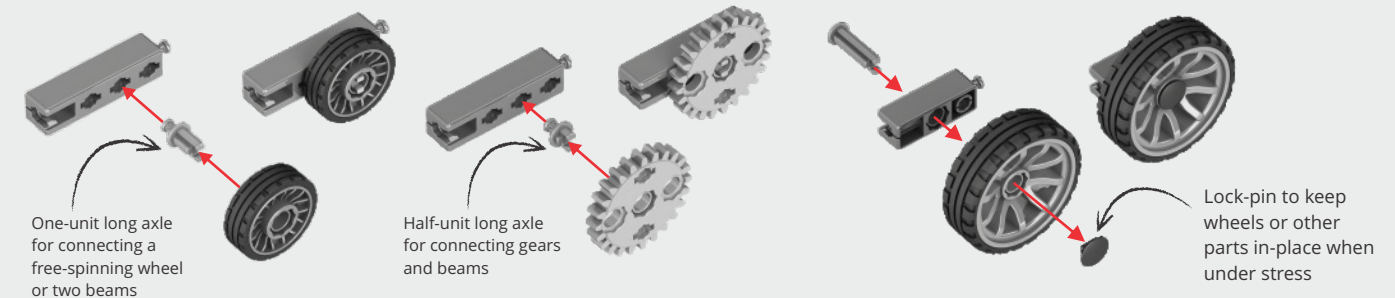
Beams can connect adjacently with each other, like bricks, by using our specially designed snap-fit axles, yet, they can be also be connected linearly at various angles using our new patented beam connectors!



One of the biggest innovations of the ENGINO® Mechanics system is how the Beams can connect easily to the Classic System using the special axle-adaptors.

2. Connecting the Wheels...

These axle-adaptors besides connecting Classic parts to Mechanics, they are best utilized for easily attaching our new low-friction wheels and gears to models. With larger models, it is possible to have the wheels breaking off due to their heavier weight. To solve this problem, a special component has been designed to be a hybrid between ENGINO® Classic rods and Mechanics' beams. This part enables a fully secure connection so that wheels or gears can remain attached to the models. There are various parts that combine these same geometries, offering a wide range of options to young builders for creating more functional mechanical and robotized models.



3. Connecting the Axles...

The new Mechanics system relies on axles to connect the various technical parts together. There are various axle sizes, with each one servicing a specific purpose and engineering application.

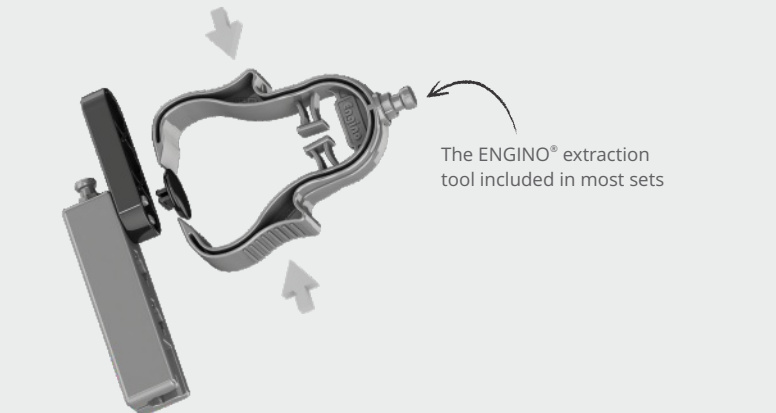
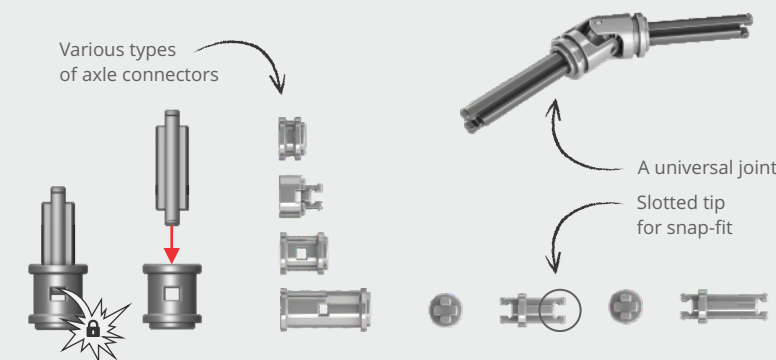
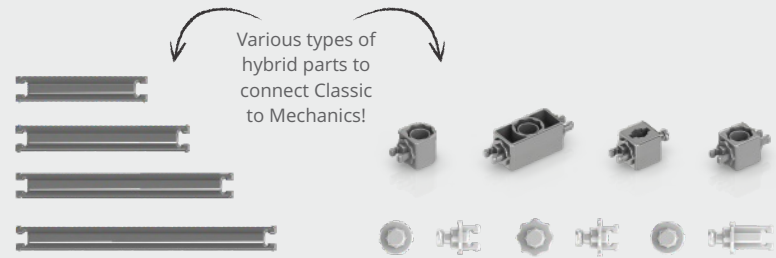
When making technical models, it is important to transfer motion longer distances. For this purpose, we have developed a range of axle connectors that allow the axles to snap-in. These connectors have various sizes and will join axles linearly, extending them to the length required. There is even a special part to connect an axle vertically on beams!

In many cases there is a need to change the direction of motion by an arbitrary angle. Transferring power at an angle is quite challenging, but engineers have actually figured it out by inventing the Universal joint centuries ago. The new Mechanics System includes even the specialized parts to model such a joint!

There is a unique design feature in all these axles, and that is the **slotted tip**. The tip has been designed with that patented shape for two purposes. The obvious one is to snap-fit when an axle is inserted in the receptive holes of beams, gears and wheels. The slot allows deflection of the tips and enable a smooth, repeatable click.

4. Locking the connections...

The second purpose of the slotted tip on the axles is what makes it a multi-purpose tool! A "lock-pin" can be inserted inside the slot and once it snaps in place, it can hold one part securely on the other, like a fastener. By attempting to pull the parts apart, the "lock-pin" wings inside the slot, restrict the axle's deflection and force the parts to remain connected. But, as easily as this pin is inserted, it is as easily removed! Just pull the pin out first, either by using fingers or with the innovative extraction tool, and parts are unlocked and released.

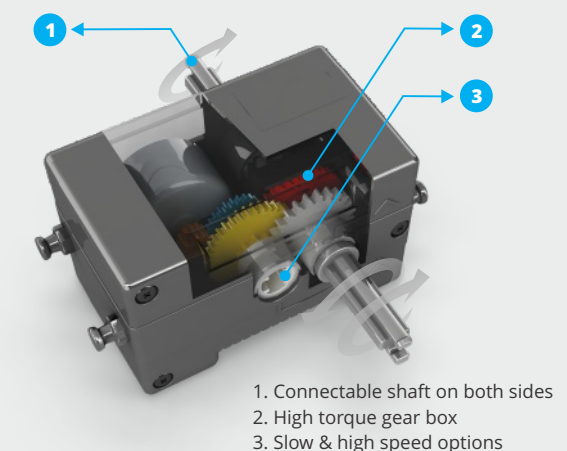
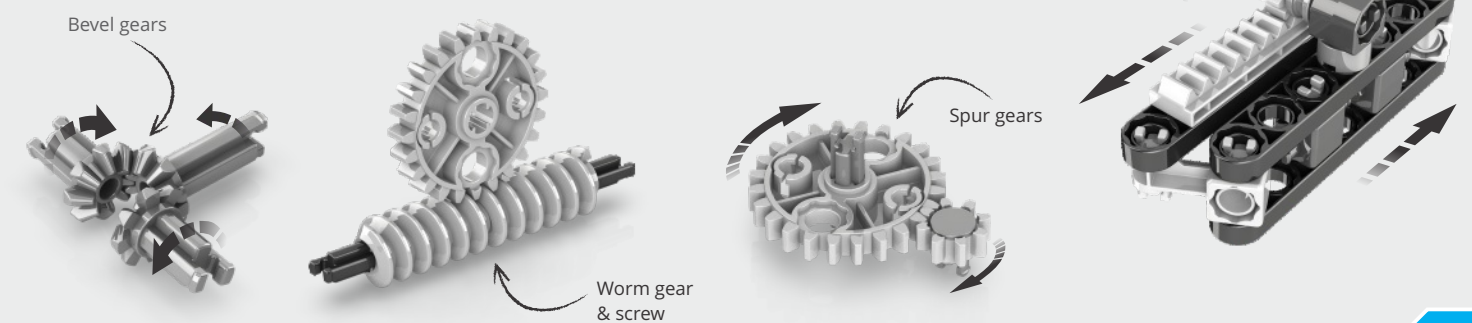


5. Powering up the Models...

The ability to animate models using motors is the first step before introducing robotics. The new ENGINO® motors are designed with a snap fit removable axle so that it can be replaced easily when overstressed. The high-performance gearbox inside the casing achieves high torque and powers two outputs as an option, a fast one and a slower one, giving a 2-speed option to the user. There are two versions of the motor, one with built-in battery compartment and one with a robotics cable. Still, living in the new world of renewable energies, we could not have left out the possibility to power the motor only with solar energy! The solar panel of ENGINO® has a large surface to produce enough voltage when placed in direct sunlight, to power even large models such as the Ferris wheel!

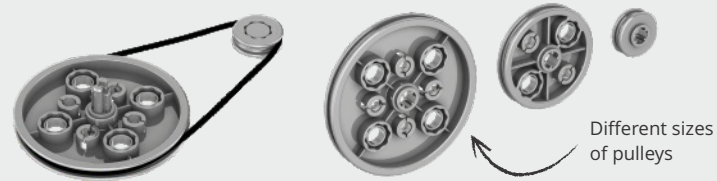
6. Working with Gears...

The new mechanics system of ENGINO® includes a range of high-precision gears that provide a smooth motion and transmit power from a hand-driven crank or the motor to another position, changing speed and torque based on the mechanical advantage of simple machines. There are 3 sizes of spur gears, a modular worm drive that can stack to itself achieving longer worms, a rack gear to convert rotational motion to linear and a set of bevel gears to change the direction of motion by 90 degrees. The central axle hub of the gears connects with a snap-fit with the various shafts of the system and is held secure in place with the use of the patented locking pin, making sure that gears will stay in place even when stressed with higher loads!



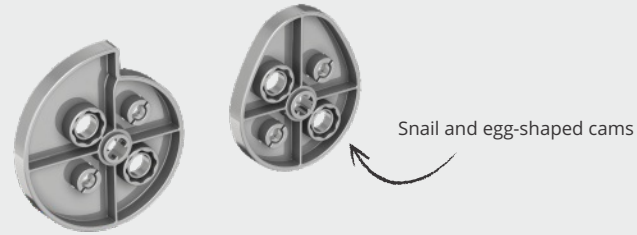
7. Working with Pulleys...

In modern-day machines, gears are more regularly used due to their compact size and efficiency. However, another Simple machine, the pulley, has been in use since ancient times and it still has its applications! Younger students understand mechanical advantage easier when using pulleys, and the Mechanics system by ENGINO® has 3 sizes of pulleys that can be used interchangeably to perform several experiments and machine configurations.



8. Working with Cams & Cranks...

To convert circular motion to reciprocal, such as the car engine, the use of cams is required. Students can learn valuable lessons through the deployment of cams in their models and understand how cams not only change the type of motion but can also act as timers. ENGINO® has two types of cams for teaching purposes, the traditional egg-shaped cam and the snail cam.



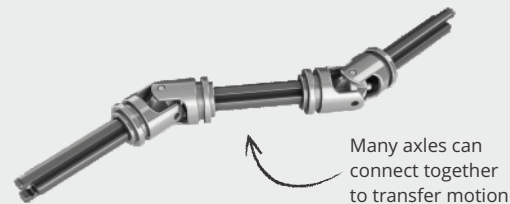
9. Working with Levers & Linkages...

The new beams of the Mechanics system has half the width of the Classic ENGINO® rods, making them more sturdy and robust, ideal to create levers and linkages and magnify motion. They can be combined with the simpler classic rods and accommodate variable complexity as per student's capabilities.



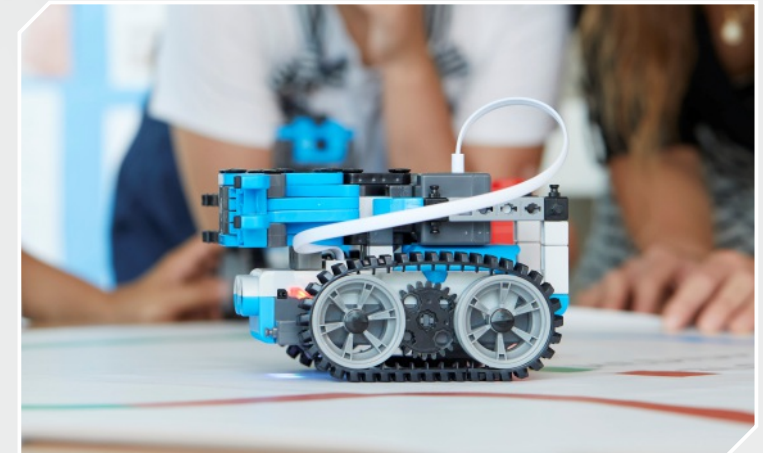
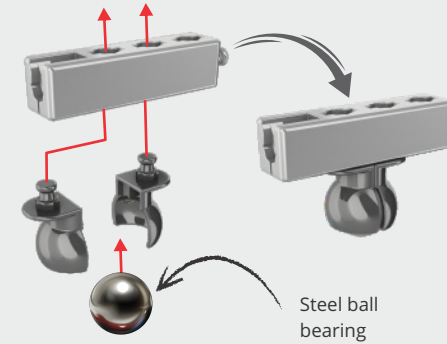
10. Making shafts...

Power transition can be achieved by using single pieces of axles or shafts. But when there is a need to reach longer distances, a single axle is not enough. The system includes axle connectors that can extend an axle to any length needed, simply by joining the axles together with snap-fit secure action. In addition to straight connectors, the ENGINO® system has Universal joints which are remarkable when attempting to change the angle of power transfer!



11. Making robots turn easily...

When students make robotic models, they are very often asked to program them for very common tasks such as line-following or obstacle avoidance. There are various methods to make a robotic car turn, but one of the most efficient ones which allows rotation on the same spot, is through the use of a central ball caster wheel. The metal sphere is captured in between two support wings and is allowed to rotate freely with minimal friction.



ENGINEO® STEM Levels™

ENGINEO® has developed a unique bench-marking methodology for categorizing the various sets on a STEM scale, from level 1 (simpler STEM features) to level 3 (advanced STEM features). Such scale can help parents select the most appropriate products for their kids based on their experience and skills attained so far. All our sets use ENGINEO® system at its core and therefore empower STEM. So, it is the individual characteristics of each set that contribute towards the final STEM score. For ease we have grouped features in two main categories, the “Construction Levels” and the “Learning Levels”, which are displayed on our website but also can be found at the bottom left corner of the product’s package. “Construction Levels” start from building frames and structures and move on to add Mechanics, and then Motors and finally Coding as the more advanced feature. The “Learning Levels” start by presenting the Theory of relevant technologies, move on to engage kids with Quizzes & Exercises, then to perform Experiments and finally develop Open Projects. Each one of these categories has 3 different levels of increasing complexity, thus providing a personalized rating that accumulates to establish its STEM score within the ENGINEO®’s ecosystem.

» STEM SCORE™

Construction Levels:



Building



Mechanics



Motors



Coding

Learning Levels:



Theory



Quiz & Exercises



Experiments

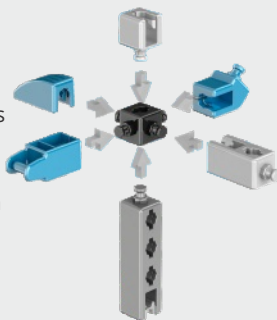


Open projects

1. Building

Score depends on the number of parts and connecting points

The ENGINEO® building system has a patented design of the parts which allows connectivity of up to 6 sides simultaneously, while the unique extendable components lead to builds that were previously unthinkable, unleashing kids' creativity and imagination. Sets include printed step-by-step instructions for the main models, but also online through our kidCAD™ interactive app.



2. Mechanics

Score depends on the number of mechanical parts

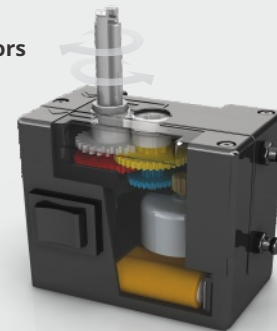
ENGINEO® Mechanics System consists of around 150+ different components, including new wheels and axles, beams and connectors and some impressive locking technologies, that are all compatible with the Classic ENGINEO® building system parts. With gears and pulleys models can be engineered to become functionable, by changing speed, direction of motion or torque!



3. Motors

Score depends on the number of motors

The ability to animate technical models using motors is the first step before introducing Robotics. Motorized sets can bring your ENGINEO® inventions to life, offering young learners the ultimate engineering adventure.



5. Theory

Score depends on amount of STEM/STEAM theory

Even though theory learning is often limited to a sterile, mechanical memorization of textbooks, with ENGINEO® kids are engaged through colorful content enriched with interesting facts about the underlying technology which drives the models of each set.



7. Experiments

Score depends on number of experiments

In order to foster scientific learning in childhood and get kids interested in learning about science, it is crucial to provide them with hands-on activities that they can explore on their own. Many sets incorporate innovative experimental activities that follow inquiry based learning whereby children can discover by themselves the technological or scientific principles relating to the set.



4. Coding

Score depends on sensors's type and quantity

Real robots need a controller with microprocessor and sensor inputs and various outputs. ENGINEO®’s patenting methodology of teaching coding starts with manual programming, moves on to virtual simulation, then to drag& drop flow diagrams and even to textual programming, powered by our KEIRO™ and ENVIRO™ software.



6. Quiz & Exercises

Score depends on number and complexity of exercises

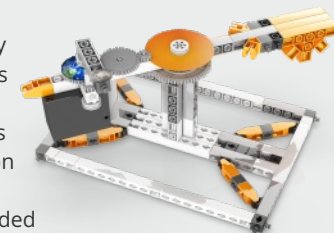
By solving fun exercises and quizzes, which are included in the educational booklet of most ENGINEO® sets, also available online, kids will be able to challenge their newly acquired knowledge and test what they have learnt!



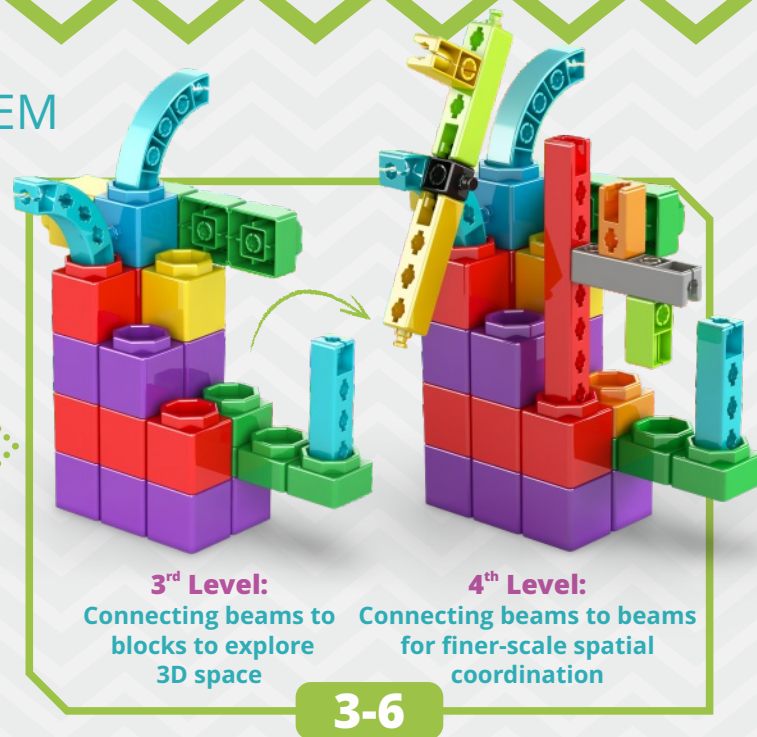
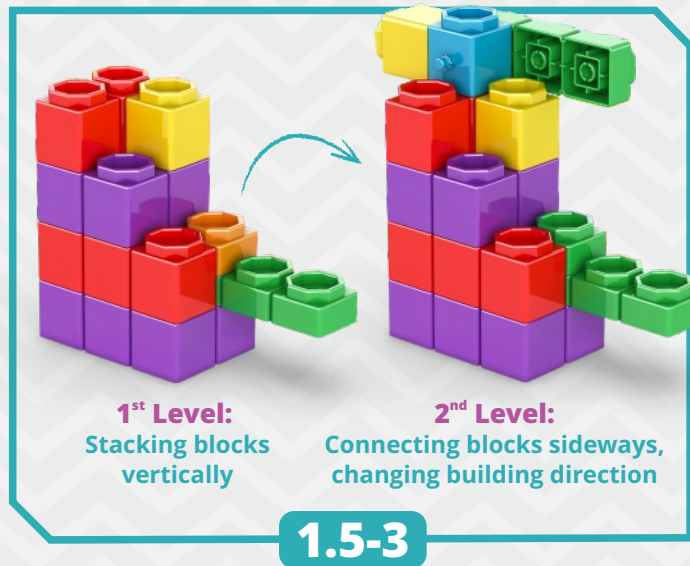
8. Open Projects

Score depends on the number and complexity of parts

Kids are by nature endowed with inexhaustible imagination and creativity and parents are always looking for ways to enhance and cultivate these remarkable qualities. ENGINEO® system's inherent design allows easy modification and reconfiguration of the models, empowering kids to engage in open-ended play, allowing them to envision and build their own ideas and not only those proposed by our research team!



BRAIN-BUILDING SPATIAL SYSTEM



After the huge success of our preschool Qboidz™ system, we introduce this year the new **Baby Qboidz™** for kids 18 months and older! The biggest and chunkier components of the system, which are both safe and easy for younger kids to assemble, go into sturdy plastic tubs that allow reusability and convenient storage. Even with the simpler parts, the Baby Qboidz™ line enables the two critical first levels of building to deploy, the first dimension empowers kids to stack blocks one over the other, as with standard bricks, and the second dimension enables them to connect parts sideways. As they grow older and develop further their dexterity skills and spatial perception, they can combine these parts with the other components from the Qboidz library and acquire higher level skills of the third and fourth dimension.



Qboidz™ baby

- Baby Qboidz Small Tub
- Baby Qboidz Medium Tub
- Baby Qboidz Large Tub



baby 1.5-3
engineers

Baby Qboidz Small Tub

Appropriate Ages
1.5+

Pieces
28



Dimensions:
13 x 14.5 x 15.5 cm
Product code:
QB10

Baby Qboidz Medium Tub

Appropriate Ages
1.5+

Pieces
44



Dimensions:
19 x 14.5 x 15.5 cm
Product code:
QB20

Baby Qboidz Large Tub

Appropriate Ages
1.5+

Pieces
72



Dimensions:
25.5 x 14.5 x 15.5 cm
Product code:
QB30

The new **Qboidz™** system combines the award-winning snap-fit connectivity of Engino® system with the effortless building feature of stackable blocks! The system encourages preschool children to develop their cognitive, social and motor skills through fun and creative play. The **Qboidz™** development is based on the latest pedagogical principles of STEM (Science, Technology, Engineering and Mathematics), aiming to provide both girls and boys with the necessary experience, skills and knowledge to cope with the technological advancements of the future. The parts are suitable even for 2 year olds but due to the complexity of some models, age 4-7 is recommended.



Qboidz™

- Wildlife Rescue 5 Bonus Models Set
- Alligator 5 Bonus Models Set
- Airplane 5 Bonus Models Set
- Farm Tractor 10 Bonus Models Set
- Racing Car 10 Bonus Models Set
- Elephant 10 Bonus Models Set

STEM inspired!



Wildlife Rescue

with 5 Bonus Models Set

3+
Appropriate Ages

Printed Instructions

Online 3D Instructions



ADVENTURES OF GINO & GINA

SPECIAL EDITION

Story Book

Activity Book

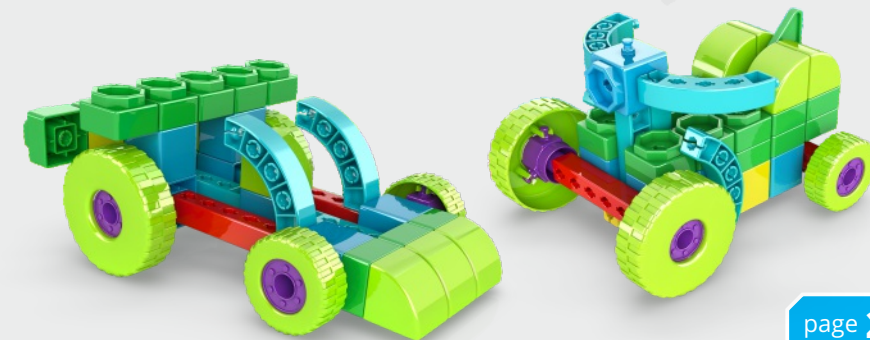
Board Game Puzzles

Rewards



Dimensions:
30 x 21.5 x 8 cm

Product code:
QB35



Alligator

with 5 Bonus Models Set

3+

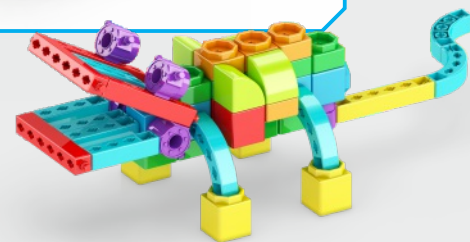
Appropriate Ages



Printed Instructions



Online 3D Instructions



Dimensions:
37 x 27 x 5.5 cm

Product code:
QB40

Airplane

with 5 Bonus Models Set

3+

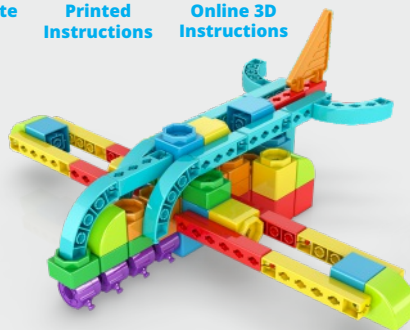
Appropriate Ages



Printed Instructions



Online 3D Instructions

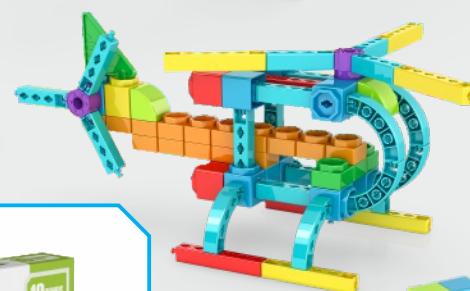
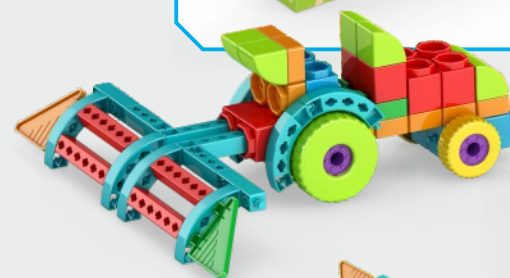


Dimensions:
37 x 27 x 5.5 cm

Product code:
QB41

Dimensions:
41 x 28 x 5.9 cm

Product code:
QB50



Dimensions:
46 x 29 x 5.9 cm

Product code:
QB60

Farm Tractor

with 10 Bonus Models Set

4+

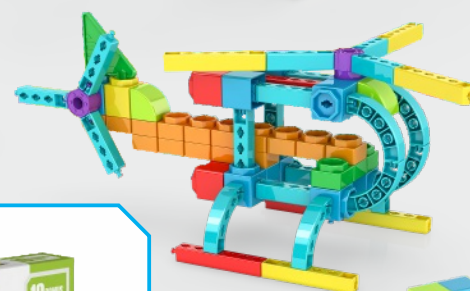
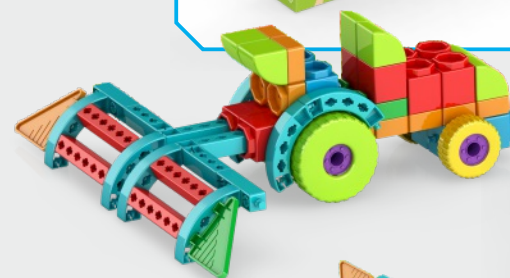
Appropriate Ages



Printed Instructions



Online 3D Instructions



Racing Car

with 10 Bonus Models Set

4+

Appropriate Ages



Printed Instructions



Online 3D Instructions



Elephant

with 10 Bonus Models Set



Appropriate Ages



Printed Instructions



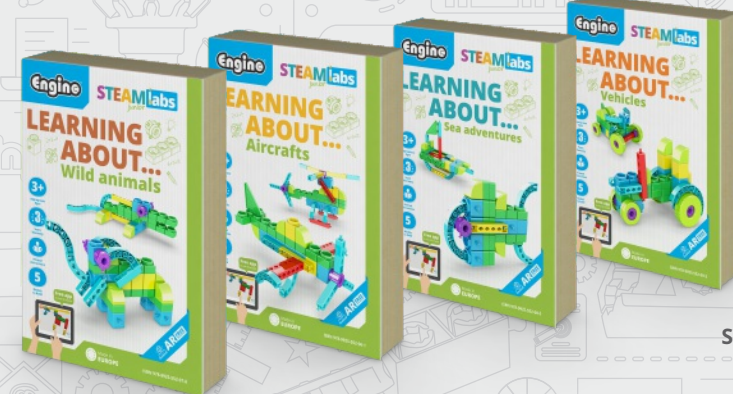
Online 3D Instructions



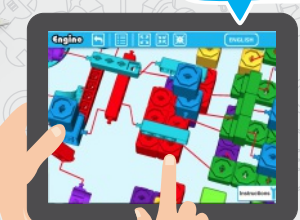
Dimensions:
47 x 31 x 6.9 cm

Product code:
QB70

This new range titled STEAM LABS JUNIOR™ has been developed for preschool children, both boys and girls. The aim is to teach children about core subject knowledge, while also developing 21st century STEAM skills. The series covers 4 different topics that resonate with children of this age. The products are positioned as toy-books by bundling the box with the book and shrink-wrapping together. With the help of an adult, preschool children can learn interesting facts about each theme, while also building their model following the step-by-step instructions. More activities come next, such as coloring pictures, connecting dots, and tracing numbers or letters of the alphabet. Additional activities are included that help kids learn about shapes, colors and maths! These books come with our free **Augmented Reality** app (AR) that makes content much more engaging and entertaining!



Book with theory, STEAM activities and building instructions

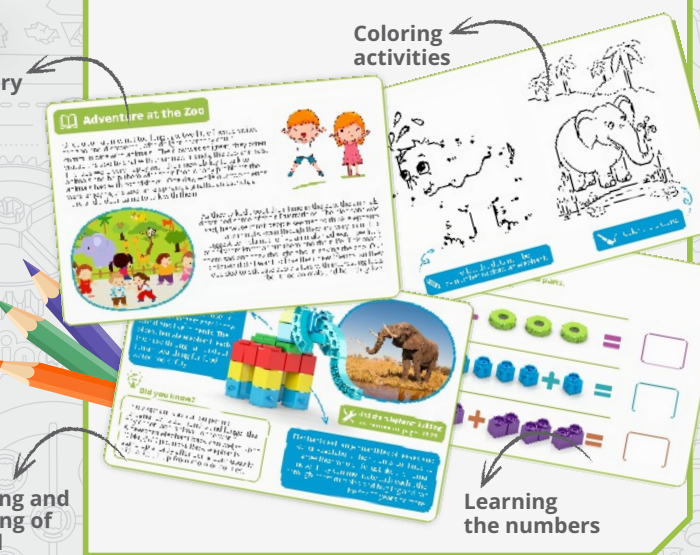


Free app to view 3D models

Building and learning of model

STEAMlabs junior

- Learning About Wild Animals...
- Learning About Aircrafts...
- Learning About Sea Adventures...
- Learning About Vehicles...



Coloring activities

Story

Learning the numbers

junior 3+ engineers

Learning About Wild Animals

3+

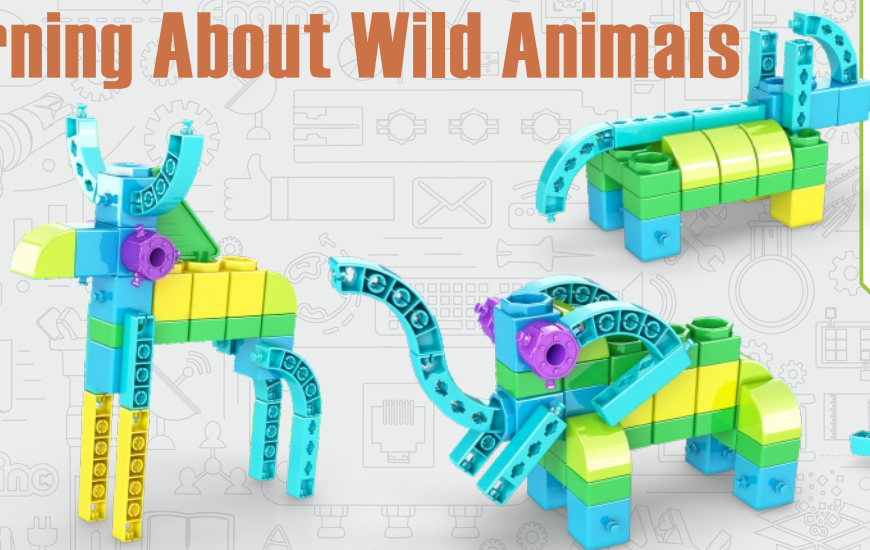
appropriate for building

5

models to build

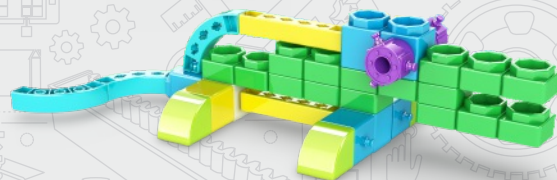
3

years warranty



Dimensions: 20.5 x 29 x 5.8 cm

Product code: STL11



Learning About Aircrafts

3+

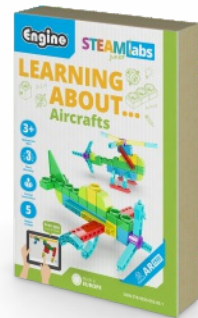
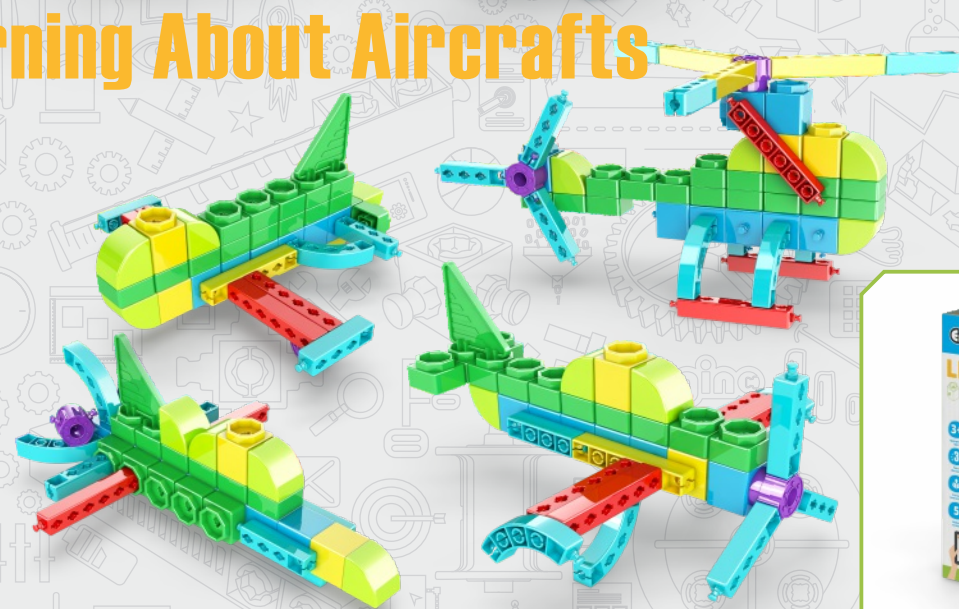
appropriate for building

5

models to build

3

years warranty



Dimensions: 20.5 x 29 x 5.8 cm

Product code: STL12

Learning About Sea Adventures

3+

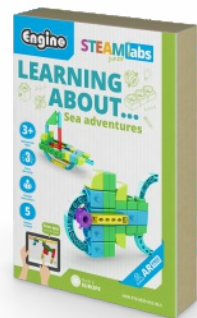
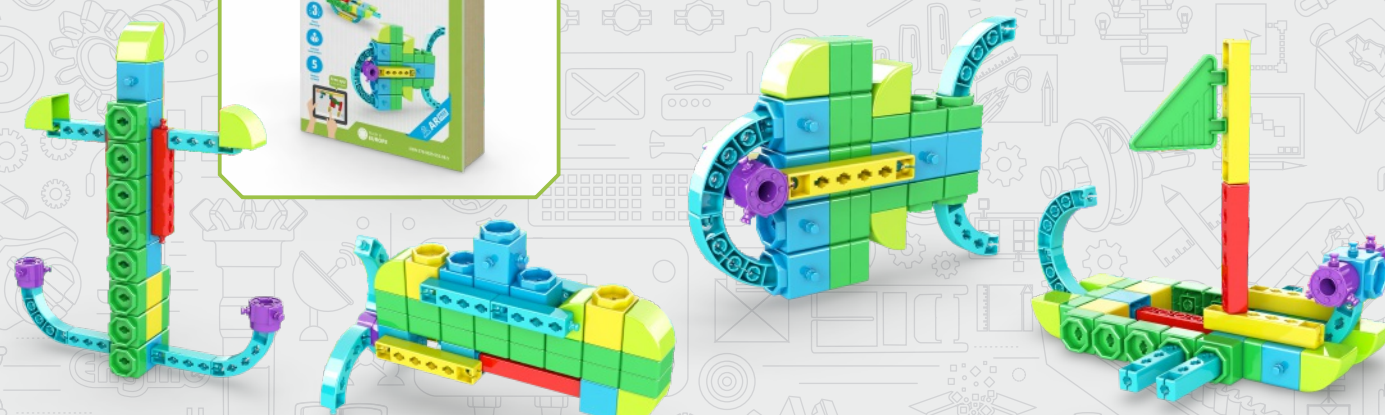
appropriate for building

5

models to build

3

years warranty



Dimensions: 20.5 x 29 x 5.8 cm

Product code: STL13

Learning About Vehicles

3+

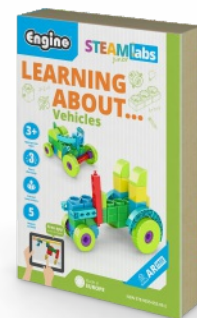
appropriate for building

5

models to build

3

years warranty



Dimensions: 20.5 x 29 x 5.8 cm

Product code: STL14



- STEM Spinner - Green
- STEM Spinner - Yellow
- STEM Spinner - Blue
- STEM Spinner - Orange



Printed blade disk included.

Spinners have always been a favorite toy of children. ENGINO® has developed this new series of colorful STEM Spinners, where creativity meets fun! Each of the 4 sets of the STEM Spinners contain a special spinner support component, a printed color disk and a library of standard ENGINO® parts. One model can be created from each set and when all sets are combined 3 models of planes and helicopters can be assembled! Instructions for the combination models can be found on ENGINO®'s website and more models are uploaded regularly to further enhance the building possibilities. To enhance learning, some facts and theory for the combined models is also available in digital format!

Did you know?

Leonardo Da Vinci designed the first helicopter called "helical air screw" back in the 15th century! It consisted of a platform with a helical screw in its centre and wings made out of cloth. This was the first illustration of a device that compresses air to obtain lift and was further developed into the most flexible type of aircraft, the helicopter. It is used in many occasions such as rescue operations, medical transports, aerial photography and fire fighting, as it can easily fly in any direction or hover in mid-air.





 **young** | 6+
engineers



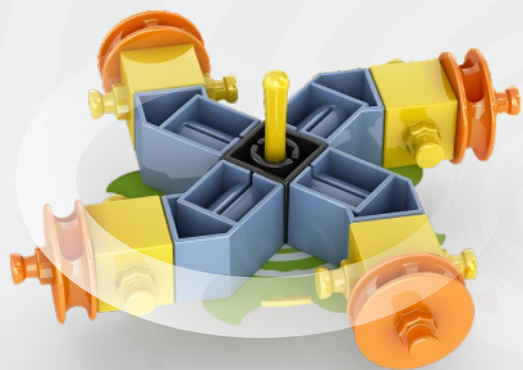
Combine all 4 sets to create 3 large models



Building instructions
Instructions de montage
Bauanleitung
Manuale d'istruzioni
Instrucciones de montaje
Инструкция по сборке
www.egino.com/spinners

STEM Spinner Green

- 6+
Appropriate ages
- Printed blade disk included
- Online 3D instructions



Dimensions:
6 x 6 x 6 cm

Product code:
SP01



STEM Spinner Yellow

- 6+
Appropriate ages
- Printed blade disk included
- Online 3D instructions



Dimensions:
6 x 6 x 6 cm

Product code:
SP02



STEM Spinner Blue

- 6+
Appropriate ages
- Printed blade disk included
- Online 3D instructions



Dimensions:
6 x 6 x 6 cm

Product code:
SP03



STEM Spinner Orange

- 6+
Appropriate ages
- Printed blade disk included
- Online 3D instructions



Dimensions:
6 x 6 x 6 cm

Product code:
SP04





MAKERSPACE

- 3D Printing
- Laser Cutting
- Wood Work
- DIY Electronics

“STEM” stands for Science, Technology, Engineering and Mathematics, and while the trend in STEM has become huge over the last few years, there is still a debate on what really STEM is and whether “Arts” are to be included in the acronym of “STEAM”. At ENGINO®, we believe learning is an interdisciplinary process where subjects intertwine, becoming “means to an end”, that is to solve a real-life problem. For us, “STEM” is more of a methodology rather than a subject, and aims to inspire kids to become future engineers and innovators. As parents and teachers become increasingly aware of the value of STEM, our team has researched into developing the future of STEM, introducing the ultimate solution for MAKERSPACES! This new series by ENGINO® with enhanced mechanical design, combine perfectly the process of crafting with modern equipment such as laser cutters and 3D printers, while adding key artistic elements that infuse the skills of engineering design and creativity to kids and adults alike!

MECHANICAL GLOBE

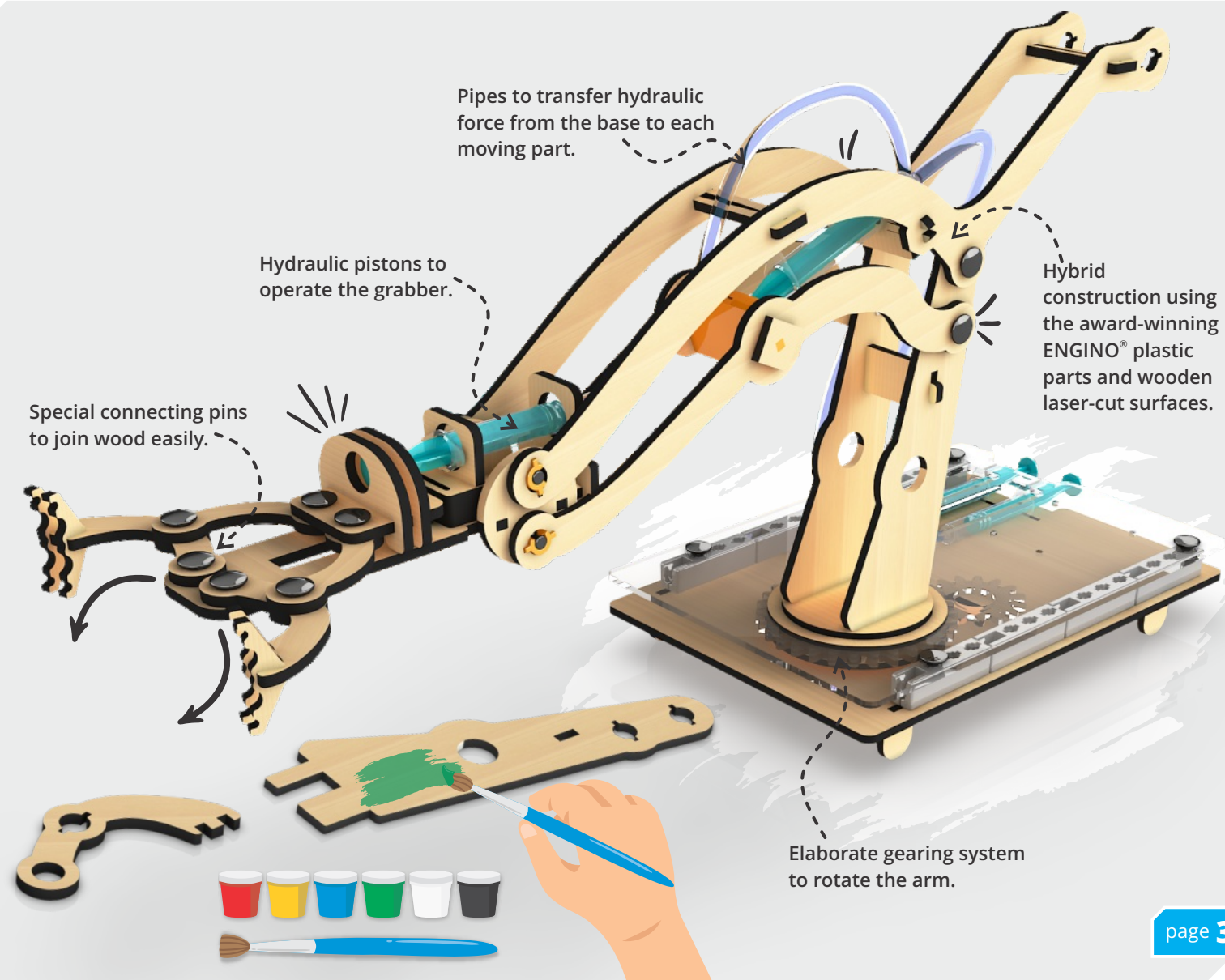
EXPLORATION SHIP

PULL-BACK RACE CAR

HYDRAULIC ROBOTIC ARM



The new MAKERSPACE series includes an elaborate theory book which not only provides the assembly instructions but also the technical and scientific information relating to the model along with fun activities to explore the theme and acquire key 21st century skills.



Pipes to transfer hydraulic force from the base to each moving part.

Hydraulic pistons to operate the grabber.

Special connecting pins to join wood easily.

Hybrid construction using the award-winning ENGINO® plastic parts and wooden laser-cut surfaces.

Elaborate gearing system to rotate the arm.

MECHANICAL GLOBE

6+

Appropriate ages

3

years warranty



Printed Instructions

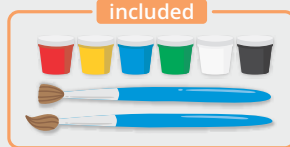


Online 3D Instructions

Dimensions:
30 x 21.5 x 8 cm

Product code:
MS01

Paint Set
included



EXPLORATION SHIP

6+

Appropriate ages

3

years warranty



Printed Instructions



Online 3D Instructions

Dimensions:
30 x 21.5 x 8 cm

Product code:
MS02

Paint Set
included



PULL-BACK RACE CAR

6+

Appropriate ages

3

years warranty



Printed Instructions



Online 3D Instructions

Dimensions:
30 x 21.5 x 8 cm

Product code:
MS03

Paint Set
included



HYDRAULIC ROBOTIC ARM

6+

Appropriate ages

3

years warranty



Printed Instructions



Online 3D Instructions

Dimensions:
30 x 21.5 x 8 cm

Product code:
MS04

Paint Set
included



The revamped CREATIVE BUILDER - Multimodel series, is the latest upgrade of the very successful 2017 INVENTOR line, which brings out the best of ENGINO®: the ability to build fast and easy as many models as possible! The classic building system is deployed, which makes the sets suitable for 6 year olds, providing a stepping stone between the Qboidz and the Mechanics lines. Creativity development is the main focus of this series, starting from a 10 models set all the way to 120 models! All our sets from 30 models and above include the ENGINO® new 2-speed motor for animated builds, from cars to cranes to dinosaurs and helicopters. The only limit is the imagination of the child!



CREATIVE BUILDER

Multimodel series

● **10 Models** Multimodel Set

● **15 Models** Multimodel Set

● **20 Models** Multimodel Set

● **25 Models** Multimodel Set

+ MOTOR POWER

● **30 Models** Motorized Set - Multimodel Set

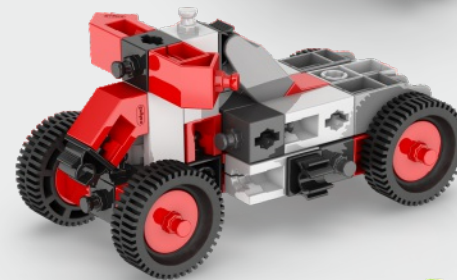
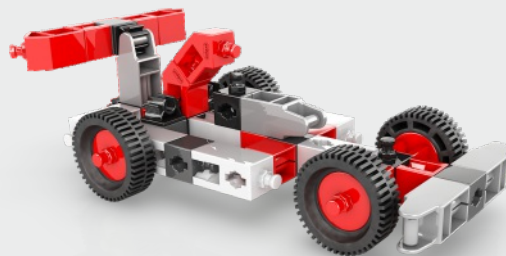
● **50 Models** Motorized Set - Multimodel Set

● **90 Models** Motorized Set - Multimodel Set

● **120 Models** Motorized Set - Multimodel Set

Dimensions:
22 x 16 x 5.5 cm

Product code:
1031

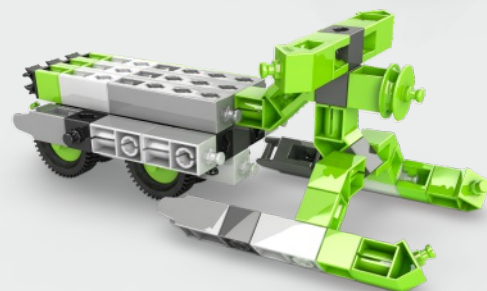


10 Models Multimodel Set

6+
Appropriate ages

3
years warranty

Printed Instructions



15 Models Multimodel Set

6+
Appropriate ages

3
years warranty

Printed Instructions



Dimensions:
26 x 19 x 5.5 cm

Product code:
1531



20 Models

Multimodel Set

6+
Appropriate ages

3
years warranty



Dimensions:
31 x 23 x 5.5 cm

Product code:
2031

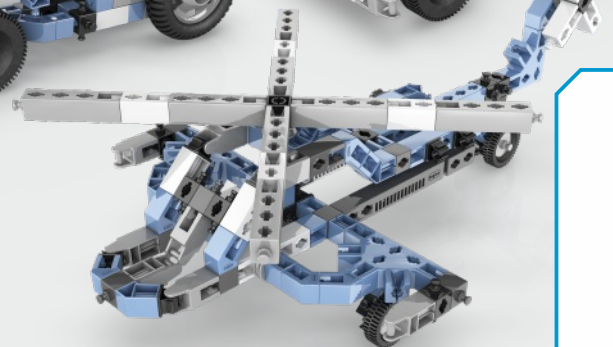
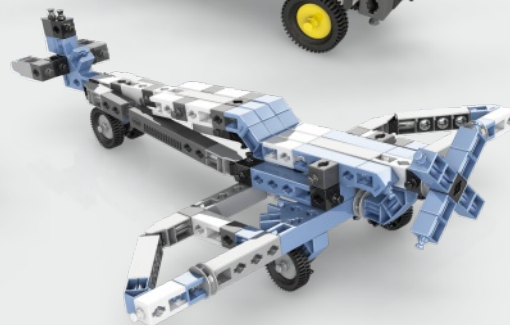
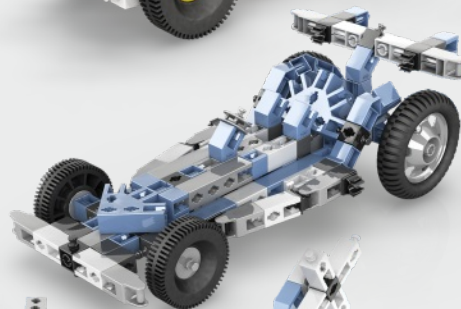


25 Models

Multimodel Set

6+
Appropriate ages

3
years warranty



Dimensions:
37 x 27 x 5.5 cm

Product code:
2531

Dimensions:
43 x 28 x 5.9 cm

Product code:
3030

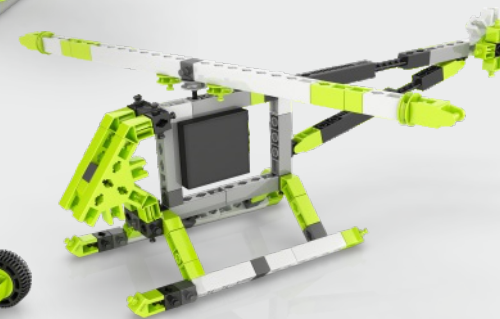
MOTOR POWER



Dimensions:
46 x 29 x 5.9 cm

Product code:
5030

MOTOR POWER



30 Models

Motorized Set - Multimodel Set

7+
Appropriate ages

3
years warranty



50 Models

Motorized Set - Multimodel Set

7+
Appropriate ages

3
years warranty



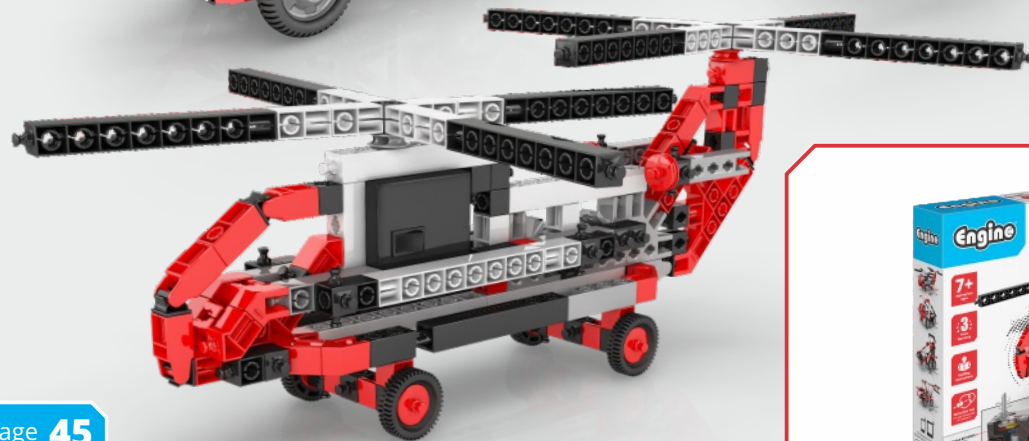
90 Models

Motorized Set - Multimodel Set

7+
Appropriate
ages

3
years
warranty

Printed
Instructions



Dimensions:
49 x 33 x 6.9 cm

Product code:
9030

**MOTOR
POWER**

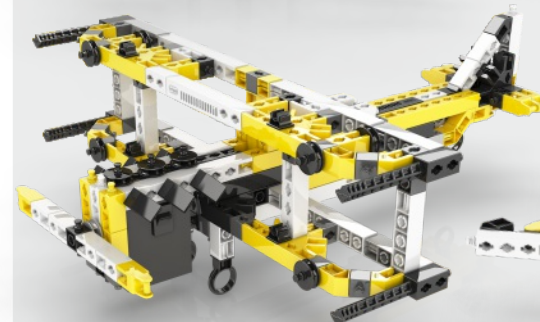
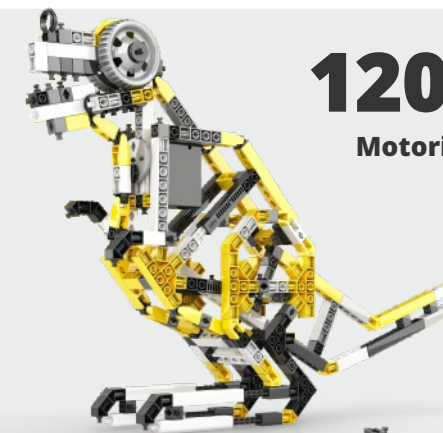
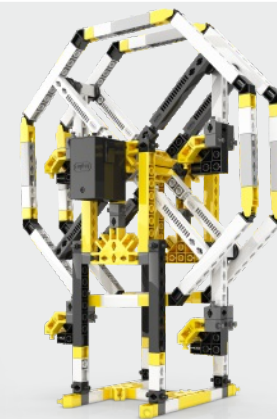
120 Models

Motorized Set - Multimodel Set

7+
Appropriate
ages

3
years
warranty

Printed
Instructions



Dimensions:
49 x 37 x 6.9 cm

Product code:
12030

**MOTOR
POWER**

Getting children, especially girls, interested in construction building and engineering can be quite a difficult task. The brand new CREATIVE BUILDER - Designer Series, tackles this problem by linking imaginative play with 3D model creation. The vivid colours of lilac, fuchsia, light green and sky blue will surely intrigue our little friends and urge them to explore their creative side. The series ranges from 15 models set to 30 models with a motor. The line is also suitable for boys who like the design style of the series.



CREATIVE BUILDER

Designer series

- 15 Models Designer Set
- 20 Models Designer Set
- 25 Models Designer Set
- 30 Models Designer Motorized Set

Dimensions:
26 x 19.5 x 5.5 cm

Product code:
CB-D15



15 Models Designer Set

6+
Appropriate ages

3
years warranty

Printed Instructions

Dimensions:
31 x 23 x 5.5 cm

Product code:
CB-D20



20 Models Designer Set

6+
Appropriate ages

3
years warranty

Printed Instructions

25 Models Designer Set

6+
Appropriate
ages

3
years
warranty

 Printed
Instructions



Dimensions:
37 x 27 x 5.5 cm

Product code:
CB-D25

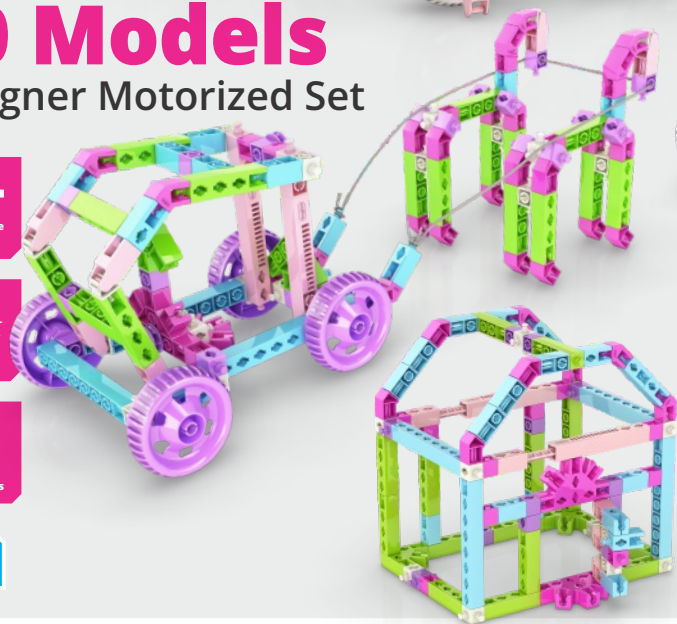


30 Models Designer Motorized Set

7+
Appropriate
ages

3
years
warranty

 Printed
Instructions



Dimensions:
43 x 28 x 5.9 cm

Product code:
CB-D30

**MOTOR
POWER**

The Machinery Series is another nice extension to the CREATIVE BUILDER line, which places emphasis on the construction of diggers, cranes and trucks, some of the most favorite play themes of 6 to 9 year old youngsters! The line consists of four different pack options, each one containing instructions for three different models. Children can build iconic machines such as a Backhoe Loader, a Telescopic Handler and a Skid Steer Loader. The larger set also includes a motor which brings the Machinery models to life.



CREATIVE BUILDER

Machinery series

- **Tipper Truck** Machinery Set
- **Wheeled Loader** Machinery Set
- **Backhoe Loader** Machinery Set
- **Tall Crane** Machinery Motorized Set

3 IN 1 MODELS

 **young** | 6+
engineers

Tipper Truck

Machinery Set

6+

Appropriate ages

3

years warranty



Printed instructions



Dimensions:
31 x 23 x 5.5 cm

Product code:
CB-M10

Wheeled Loader

Machinery Set

6+

Appropriate ages

3

years warranty



Printed instructions



Dimensions:
37 x 27 x 5.5 cm

Product code:
CB-M20

Dimensions:
41 x 28 x 5.9 cm

Product code:
CB-M30



Dimensions:
49 x 33 x 6.9 cm

Product code:
CB-M40

MOTOR POWER

Backhoe Loader

Machinery Set

6+

Appropriate ages

3

years warranty



Printed instructions



Tall Crane

Machinery Motorized Set

7+

Appropriate ages

3

years warranty



Printed instructions



page 52

page 51

The new INVENTOR MECHANICS series has a thematic approach with multi model capabilities, featuring an impressive main model. A new library of patent-pending components has been added to the ENGINO® system which enhances both aesthetics and technical features. These parts include high-precision wheels, mechanisms and snap-fit curved surfaces. The smaller sets in the series are suitable for 7 year olds, while older children are challenged with the bigger sets which also include a geared motor. The top of range steps-up the complexity with Robotics technology, Bluetooth connectivity and software control.



INVENTOR

- **Speed racer**
with 5 bonus models Mechanics Set
- **Acrobatic plane**
with 5 bonus models Mechanics Set
- **Quad bike**
with 5 bonus models Mechanics Set
- **Tipper truck**
with 5 bonus models Mechanics Set
- **Beach buggy**
with 5 bonus models Mechanics Set
- **Custom bike**
with 5 bonus models Mechanics Set
- **Excavator**
with 5 bonus models Mechanics Set
- **Space shuttle**
with 5 bonus models Mechanics Set
- **Race car**
with 10 bonus models Motorized Set
- **4-wheeled extreme bike**
with 10 bonus models Motorized Set
- **Offroader**
with 10 bonus models Motorized Set
- **Double-blade helicopter**
with 10 bonus models Motorized Set
- **GinoBot**
with 10 bonus models Robotized Set

Dimensions:
22 x 16 x 5.5 cm

Product code:
IN10



Speed Racer

with 5 Bonus Models Mechanics Set

9+
Appropriate ages

3
years warranty

Printed Instructions



Acrobatic Plane

with 5 Bonus Models Mechanics Set

9+
Appropriate ages

3
years warranty

Printed Instructions

Dimensions:
22 x 16 x 5.5 cm

Product code:
IN11



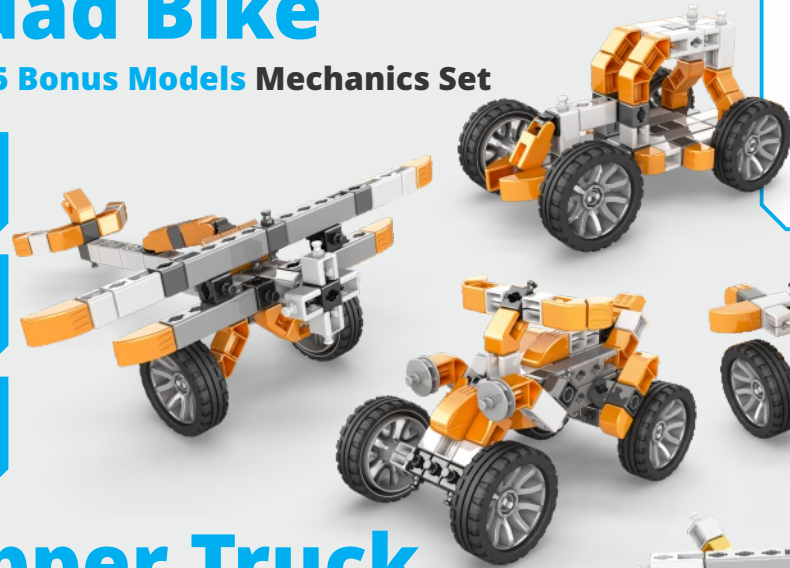
Quad Bike

with 5 Bonus Models Mechanics Set

9+
Appropriate ages

3
years warranty

Printed Instructions



Dimensions:
26 x 19.5 x 5.5 cm

Product code:
IN20

Tipper Truck

with 5 Bonus Models Mechanics Set

9+
Appropriate ages

3
years warranty

Printed Instructions



Dimensions:
26 x 19.5 x 5.5 cm

Product code:
IN21

Dimensions:
31 x 23 x 5.5 cm

Product code:
IN30



Beach Buggy

with 5 Bonus Models Mechanics Set

9+
Appropriate ages

3
years warranty

Printed Instructions

Custom Bike

with 5 Bonus Models Mechanics Set

9+
Appropriate ages

3
years warranty

Printed Instructions



Dimensions:
31 x 23 x 5.5 cm

Product code:
IN31

Excavator

with 5 Bonus Models Mechanics Set

9+

Appropriate ages

3

years warranty



Printed instructions



Dimensions:
37 x 27 x 5.5 cm

Product code:
IN40

Space Shuttle

with 5 Bonus Models Mechanics Set

9+

Appropriate ages

3

years warranty



Printed instructions



Dimensions:
37 x 27 x 5.5 cm

Product code:
IN41

Race Car

with 10 Bonus Models Motorized Set

9+

Appropriate ages

3

years warranty



Printed instructions



Dimensions:
41 x 28 x 5.9 cm

Product code:
IN50

MOTOR POWER

4-Wheeled Extreme Bike

with 10 Bonus Models Motorized Set

9+

Appropriate ages

3

years warranty



Printed instructions



Dimensions:
43 x 28 x 5.9 cm

Product code:
IN51

MOTOR POWER

Offroader

with 10 Bonus Models Motorized Set

9+

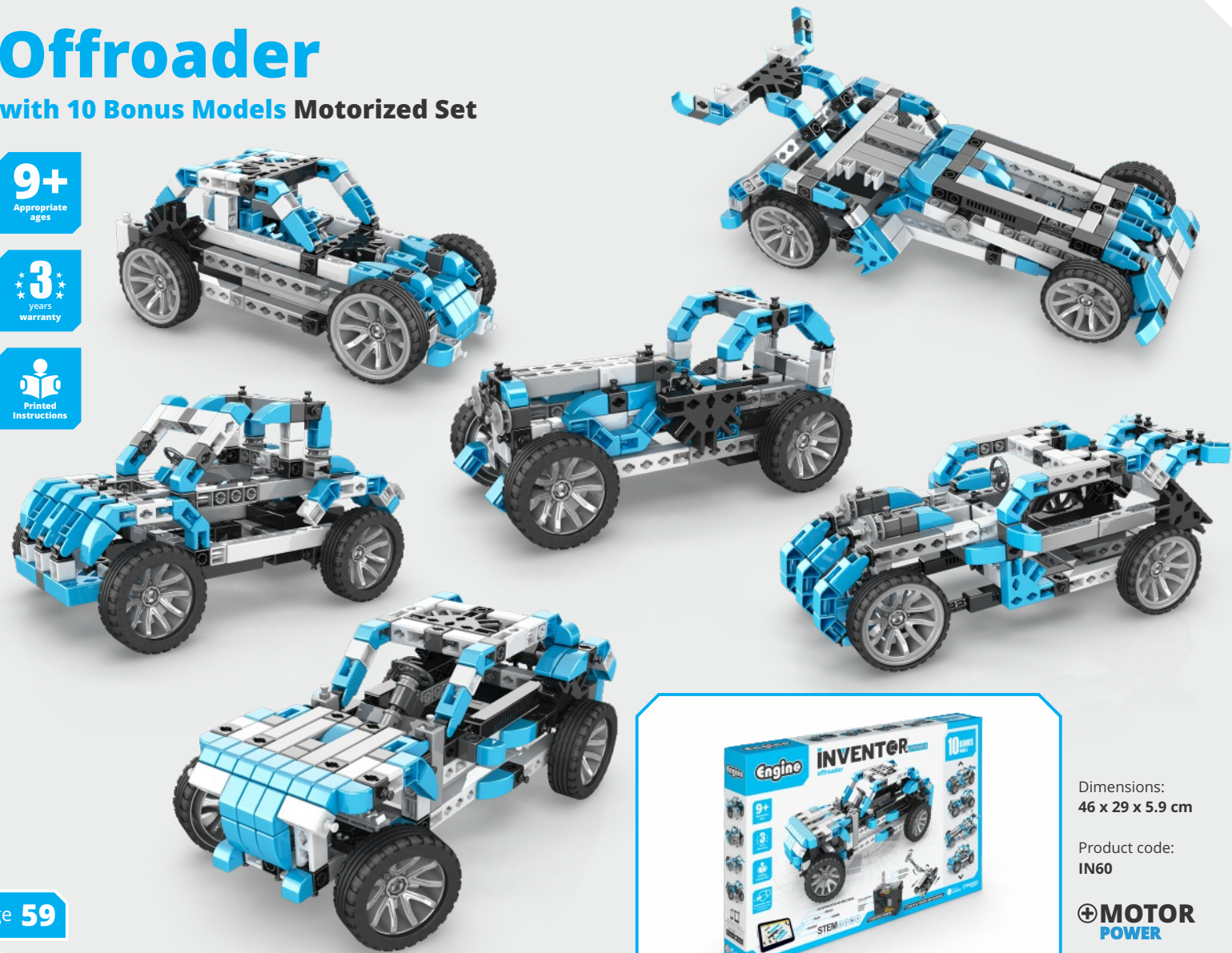
Appropriate ages

3

years warranty



Printed instructions



Dimensions:
46 x 29 x 5.9 cm

Product code:
IN60

MOTOR POWER

Double-Blade Helicopter

with 10 Bonus Models Motorized Set

9+

Appropriate ages

3

years warranty



Printed instructions



Dimensions:
47 x 31 x 6.9 cm

Product code:
IN70

MOTOR POWER

Ginobot

with 10 Bonus Models Robotized Set

9+

Appropriate ages

3

years warranty

Printed Instructions

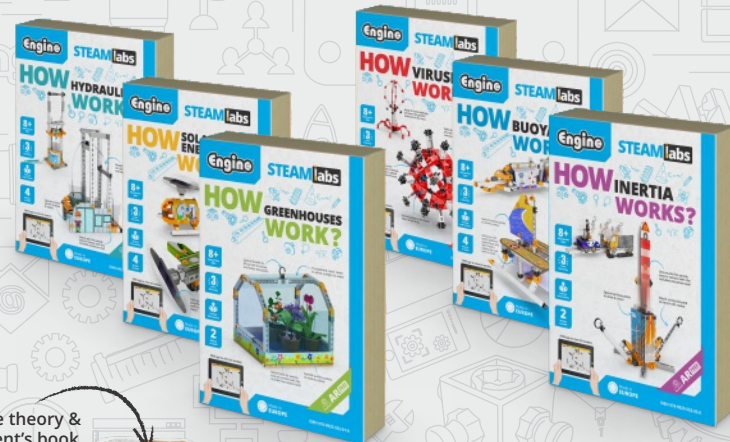


Dimensions:
49 x 33 x 7.9 cm

Product code:
IN90

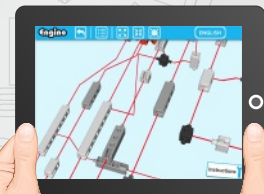
MOTOR POWER

The new STEAM LABS™ toybook series has been developed based on the latest pedagogical trend that incorporates “Arts” within the STEM wording. Even though art is an inherent part of the engineering design process, “A” puts emphasis on one of the highest brain functions of human beings, that of inspirational creativity. “Inspiration” has been the driving force behind all humanity’s masterworks, either inventions, architecture, music, painting or literature. STEAM LABS™ toybook series innovate further by bundling the toy with the Theory & Activity book on the outside of the box, shrink-wrapped together. Each set includes sheets of paper with pre-defined sketches which kids can paint, cut and attach on their models. The books explain the theory about the subject and include smart experimental activities that relate to each theme. These books come with our free **Augmented Reality** app (AR) that makes content much more engaging and entertaining! There is an option to get the products of this series as “books”, with the booklet placed and shrink-wrapped outside a brown carton box, or as a normal toy box, printed in full colour with the same STEAM book inside.



Elaborate theory & experiment's book

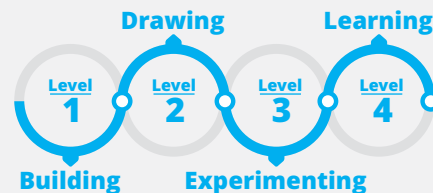
FREE app to view 3D models



STEAM labs

- How Solar Energy Works ?
- How Greenhouses Work ?
- How Hydraulics Work ?
- How Buoyancy Works ?
- How Inertia Works ?
- How Viruses Work ?

Multi-level Learning System™



young engineers 6+

The sets of this series are based on the ENGINO®s **Multi-level Learning System™**. Each level corresponds to different skills that can be acquired through encompassing STEAM activities, starting from the practical (model building) going all the way to the abstract (learning through experiments).

Level 1 - Building: Use the included plastic parts and follow the building instructions to construct your model. Add skin surfaces to create a more complicated construction and make your model look more realistic!

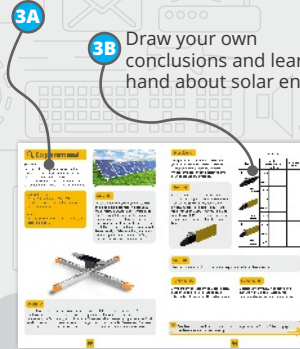
Level 2 - Drawing: Give your model a more personal style by colouring the included surfaces, or step-up and be more creative by designing and painting your own theme from scratch.

Level 3 - Experimenting: Use the model you have built to carry out the suggested experiment and discover key scientific principles about the subject by yourself.

Level 4 - Learning: Read the theoretical section to enhance your knowledge with further information and amazing facts, becoming an expert in the field! Take the included quiz to test what you have learnt.

An example from the Solar Plane set

3A Carry out the experiment and write down your observations!



3B Draw your own conclusions and learn first hand about solar energy!

LEVEL 4 Learning

LEVEL 3 Experimenting

LEVEL 2 Drawing

LEVEL 1 Building

Multi-level Learning System™

SHARE skins online:
www.Engino.com/stl/21

4A Read the background theory and learn about some amazing facts relating to solar energy!



2A Replace the plastic skin and colour your own!



2B Flip the paper skins and create your own design from scratch!

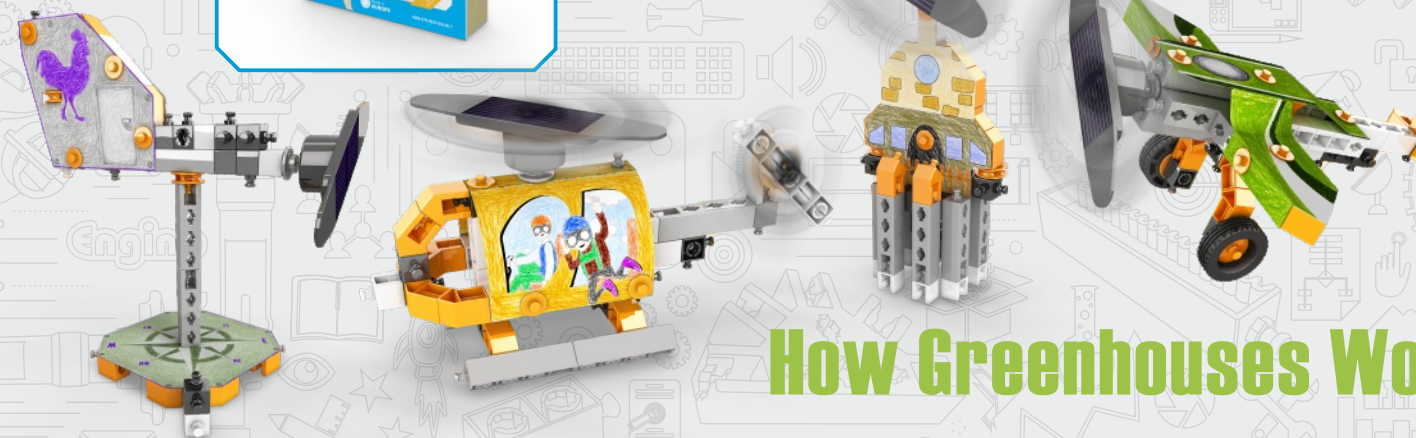


2C Create your own skins and share with fellow inventors!

Download and print various skins to change the look of your models!

Dimensions: 20.5 x 29 x 5.8 cm

Product code: STL20



Dimensions: 20.5 x 29 x 5.8 cm

Product code: STL23



How Solar Energy Works ?

How Greenhouses Work ?

8+

4 models to build

3 years warranty

8+

1 model to build

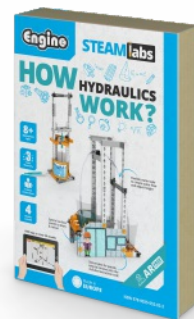
3 years warranty

How Hydraulics Work ?

8+

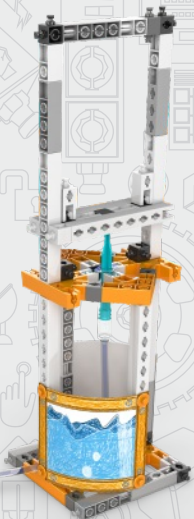
4 models to build

3 years warranty



Dimensions: 20.5 x 29 x 5.8 cm

Product code: STL24

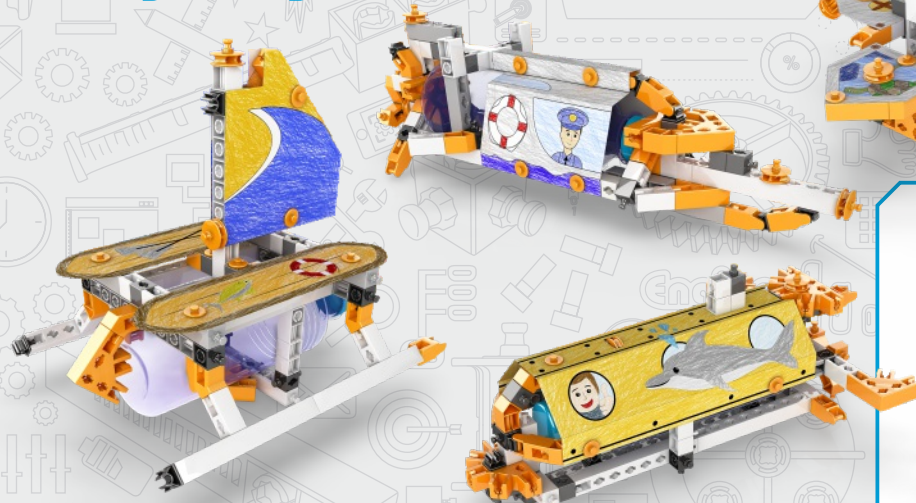


How Buoyancy Works ?

8+

4 models to build

3 years warranty

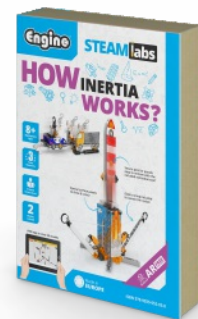


Dimensions: 20.5 x 29 x 5.8 cm

Product code: STL25

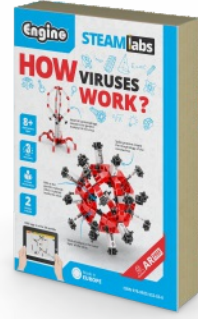
Dimensions: 20.5 x 29 x 5.8 cm

Product code: STL26



Dimensions: 20.5 x 29 x 5.8 cm

Product code: STL27



How Inertia Works ?

8+

2 models to build

3 years warranty

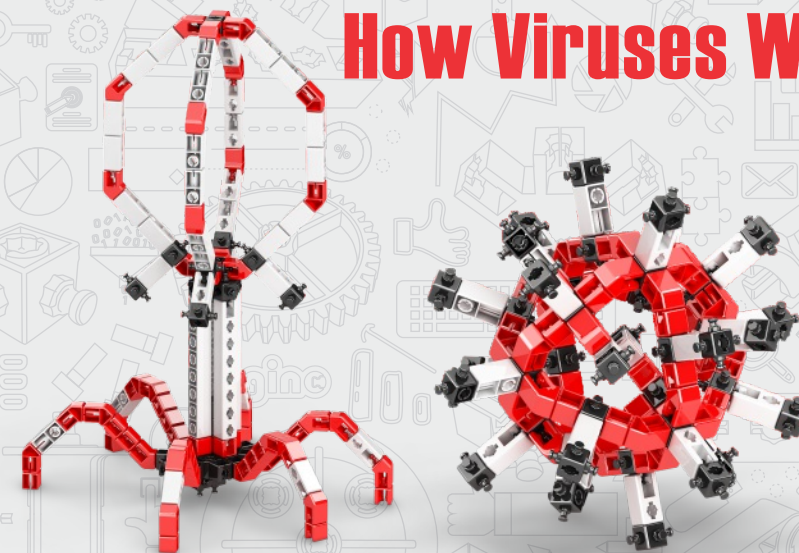


How Viruses Work ?

8+

2 models to build

3 years warranty



The new robotic line called **CODING LAB** has been specially developed for robotic enthusiasts, who look for smart programmable gadgets of expandable and reconfigurable capabilities. The line is spearheaded by GinoBot™, the latest innovative robotics vehicle, with wi-fi and BT connectivity, ideal for Primary and Secondary school students but also hobbyist engineers. The ERP MINI™ takes this expertise to a higher level having independent sensors and controller, while ERP PRO™ is the top of the range with 3 motors, IR sensors and advanced mechanical elements. The CODING LAB line, through hands-on activities and real-life problem-solving challenges, can really help our next generation of inventors develop STEM expertise and acquire the so much needed 21st century skills.



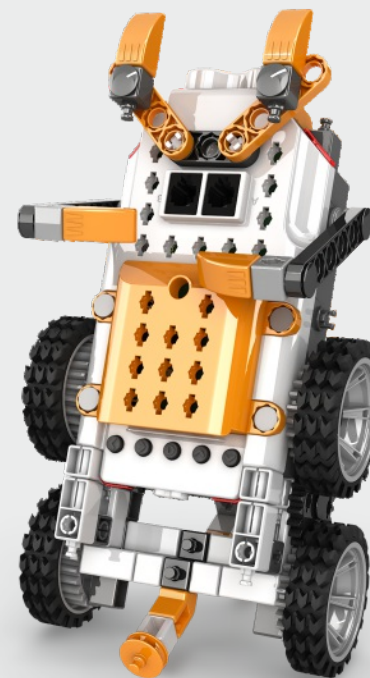
CODING LAB

- GINOBOT™ Expandable Robot
- ERP MINI™ Expandable Robot
- ERP PRO™ Expandable Robot

CODE LEARN & INVENT
with flow icons & text programming



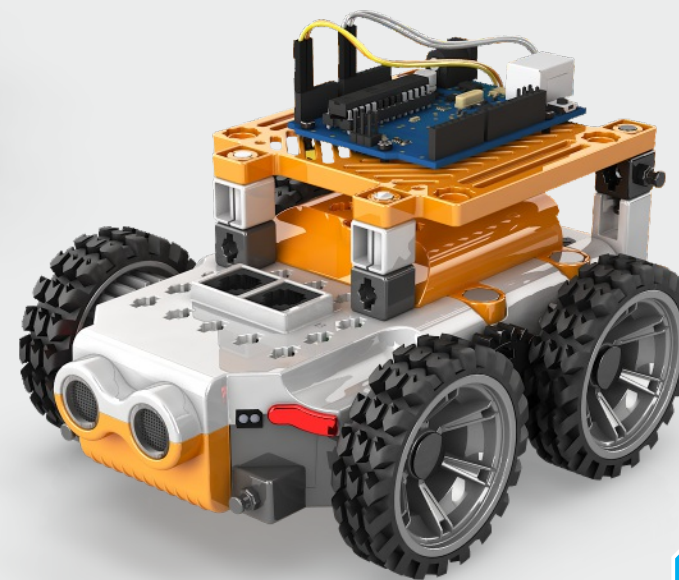
Models to build



CODING LAB

GINO BOT EXPANDABLE ROBOT

CODING LAB GINO BOT™ is the new expandable robot by ENGINO®! GINO BOT™ has built-in connectors of ENGINO®, enabling structural and mechanical expansion. Expandability extends also to open electronics as GINO BOT™ is connectable to Raspberry Pi®, Micro:bit® and Arduino® as well to ENGINO® ERP sensor modules (not included). This 4-wheel drive version of GINO BOT™ comes with wifi and bluetooth, and has 2 colour sensors built-in at the bottom to follow coloured lines, an ultrasound sensor at the front, 3 Infrared distance sensors and 4 programmable RGB lights!



Dimensions:
30 x 30 x 8.2 cm

Product code:
ROB10

CODINGLAB

ERP MINI

EXPANDABLE ROBOT

CODINGLAB ERP MINI™ is the spin-off of tested technologies by ENGINO®, used in schools globally to teach robotics and programming. This gadget version has advanced features and comes with a manually programmable controller that can also be connected with bluetooth to smart devices or with a USB port to a PC. It is programmable with the KEIRO™ software and allows full reconfiguration to create robotic models and includes 2 Infrared distance sensors with 2 motors.



9+

Bluetooth™

2

Models to build



Dimensions:
32 x 32 x 9 cm

Product code:
ROB20

9+

Bluetooth™

2

Models to build



CODINGLAB

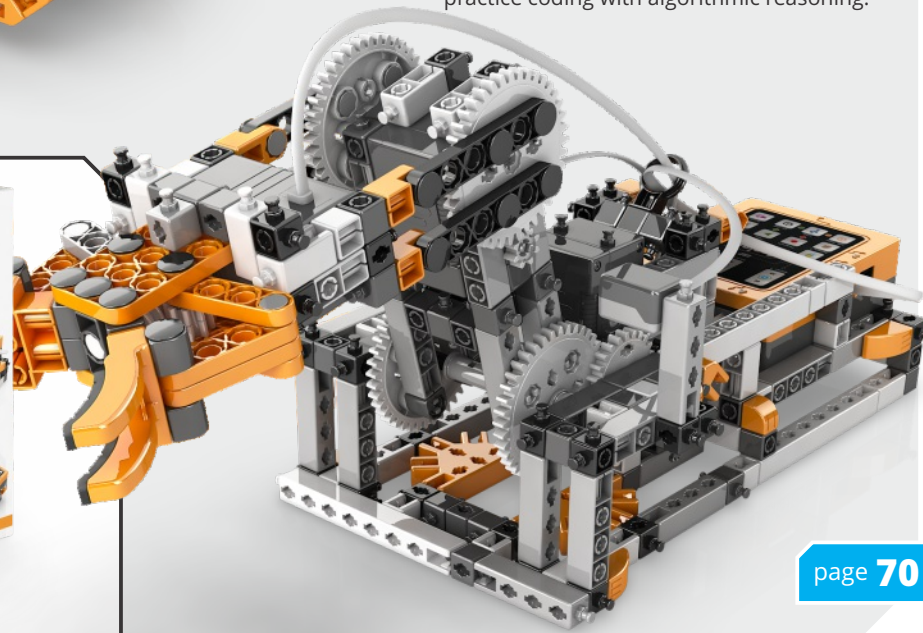
ERP PRO

EXPANDABLE ROBOT

CODINGLAB ERP PRO™ is based on the first robotic platform of ENGINO® which has introduced a new era of innovations, leading the global STEM trend. The gadget set, besides the Ultrasonic sensor, one IR sensor and 3 motors, includes an extensive library of mechanical parts with gearing systems to build advanced models including a functional robotic arm and a grabber vehicle. ERP PRO™ comes with a manually programmable controller that can also be connected with bluetooth to smart devices or with a USB port to a PC. It is programmable with the KEIRO™ software and allows full reconfiguration to create robotic models and practice coding with algorithmic reasoning.

Dimensions:
34 x 34 x 9.5 cm

Product code:
ROB30



DISCOVERINGTM STEM



Science • Technology • Engineering • Mathematics



The purpose of STEM education - Science, Technology, Engineering and Mathematics - is to provide students with the necessary skills, knowledge and experience in order to cope with the technological challenges of the future. Modern pedagogical theories suggest that the study of engineering should be incorporated in all other subjects, starting from elementary level. DISCOVERING STEM series, offers a practical solution for facing all these educational issues, aiding the teacher to engage students in STEM disciplines in a fun, exciting and interesting way! The educational packages are also ideal as a home learning tool! The series covers a broad area of subjects: Mechanics and Simple machines, Structures, Newton's Laws, Renewable Energy and even Programmable Robotics.

● STEM MECHANICS: Levers, Linkages & Structures

● PHYSICS LAWS:

Inertia, Friction, Circular Motion & Energy Conversion

● HOW CARS WORK?

● HOW AIRCRAFTS WORK?

● STEM MECHANICS: Levers & Linkages

● STEM MECHANICS: Wheels, axles & Inclined planes

● STEM MECHANICS: Pulley drives

● STEM MECHANICS: Cams & Cranks

● STEM MECHANICS: Gears & Worm drives

● STEM STRUCTURES: Buildings & Bridges

● STEM NEWTON'S LAWS:

Inertia, Momentum, Kinetic & Potential Energy

● STEM ASTRONOMY: Travelling to space

● STEM PALEONTOLOGY: How dinosaurs lived

● STEM SOLAR POWER: Converting Sunlight to Electricity

● STEM SIMPLE MACHINES

● STEM FLUIDS DYNAMICS

● STEM BOTANIC LABORATORY

● STEM ARCHITECTURE SET: Eiffel Tower and Sydney bridge

● STEM AMUSEMENT PARK: London Eye & Merry-Go-Round

● STEM ROBOTICS ERP MINI



Mechanics: Levers, Linkages & Structures

Learn how Levers are used to increase a force for lifting heavy objects and how you can create models with complex motion by connecting many levers together. Discover all the types of forces acting on structures and find out ways to reduce their effects. Build 16 working models such as a seesaw, a movable weight scale, a wheelbarrow, a parking gate, a toy with moving figures, a pantograph, a cube and a double deck bridge. You can find easy-to-follow building instructions for all models either online or in the booklet included. The booklet provides detailed explanations of the different scientific principles applied and incorporates innovative experimental activities for hands-on learning. A Quiz section is also available to challenge your newly acquired knowledge!

12

pages of theory and amazing facts!

4

pages of revision quiz!

2

pages of experimental activities!

15

pages of step by step instructions!

9+

Dimensions:
31 x 23 x 5.5 cm

Product code:
STEM901

page 73



build a wheelbarrow

Construct this model of a wheelbarrow and learn how it is used to carry heavy loads, using the elements of levers: fulcrum, effort and load; discovering the properties of second-class levers.

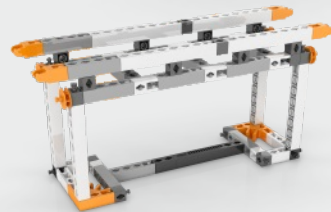
- How to carry heavy loads.
- What a second-class lever is.



build a folding platform

This model of a folding platform is fully operational and will help you discover how several levers connected together create a linkage that helps us raise the platform. Experiment and discover how we can gain mechanical advantage using Levers.

- What a parallel linkage is.
- How levers and linkages work together.



build a double deck bridge

Bridges can change type through specific modifications. This is simulated easily with the Engino system. Transform a single beam bridge into a double deck bridge and check the rigidity of the two models.

- What are the different types of forces.
- How to create a rigid bridge.



build a lever crane

Make a working model of a lever crane and learn how it is used for lifting heavy objects, without falling over to the other side. Compare your model with a real one and learn about first-class levers.

- How to lift heavy objects.
- What a first-class lever is.

build a rocket launcher

Create your own launching pad and send a "rocket" high in the air! Observe how the elastic energy of the spring is converted into kinetic energy. Learn about "escape velocity" and why it is important for real rockets to achieve it in order to leave Earth!

- What elastic energy and spring tension are.
- What escape velocity is.

build a crash test rig

This amazing model simulates a car crashing on a wall using the elastic energy of a rubber band and converting it to kinetic energy. Learn how force, acceleration and mass affect the velocity of an object. Learn about the importance of safe driving and fastening your seatbelt.

- What Newton's 1st and 2nd Law of motion are.
- What inertia is and how it works.

build a bow and arrow

The most influential weapon in human history before the invention of gunpowder. Human civilizations relied on archery to provide food and to fight wars. Play with this model to observe the conversion of elastic energy into kinetic and how the forces of action and reaction occur!

- How energy converts in different forms.
- Newton's 3rd law of action and reaction.

build a sharpening wheel

Since antiquity, sharpening wheels were used to shape many tools, such as spears and knives. This was possible due to the force of friction! Experiment with a similar model and learn how friction depends on the materials that are in contact and the reaction force between them.

- How friction affects the motion of a body.
- What Newton's 3rd law of motion is.



Physics LAWS: Inertia, Friction, Circular Motion & Energy Conversion

Learn all about Newton's laws of motion which are the basis of classical mechanics that still describe most everyday life situations. Experiment with kinetic and potential energy in order to discover the properties of energy and how it is transformed from one form to the other. Build 6 working models such as a crash test rig, a rocket launcher, a sharpening wheel, a bow and arrow, a rubber car and an inertia test platform. You can find easy-to-follow building instructions for all models either online or in the booklet included. The booklet provides detailed explanations of the different scientific principles applied and incorporates innovative experimental activities for hands-on learning. A Quiz section is also available to challenge your newly acquired knowledge!

12

pages of theory and amazing facts!

4

pages of revision quiz!

2

pages of experimental activities!

15

pages of step by step instructions!

9+

Dimensions:
31 x 23 x 5.5 cm

Product code:
STEM902

page 74



How Cars Work ?

Technology of Machines

Cars, or automobiles, are probably the most common way for transporting humans and goods. They may vary in size and design, but all are defined as motor vehicles that run primarily on roads and have wheels. Cars came into global use during the 20th century and our developed economies depend on them. Who was the inventor of the car? What are the basic parts of a car and how do they work? How crucial is safety and comfort for passengers? Which physical laws car engineers need to know?



build a formula

Formula cars are the elite of motorsports and automobile technology. They are designed for ultimate aerodynamic downforce and maximum performance.

- Which are the most popular motorsports?
- What is mechanical advantage?



build a sports car

Motor sports drive excellence in car design and innovation in automobile engineering. Build this sports car and read how fuel is burned into power and which are the basic parts of a car.

- How do pistons work inside the engine?
- What is the role of the gearbox?



build an off-roader

This experimental model can be used to verify that cars with shorter wheelbase are more suitable for off-road driving. Experiment with the model to discover:

- How the design affects the performance?
- What is breakover angle?



build a micro car

This micro car model demonstrates that compact and elegant designed cars are ideal solutions for city centre driving. Read the booklet and learn the challenges of driving in city centre.

- Why small cars help in traffic jams?
- What are airbags and anti-lock brakes?

build a gunship helicopter

Some of the most powerful helicopters can carry tons of load and support ground forces. This large model of gunship helicopter features long rotor blades and big fuselage.

- How helicopters support firefighters?
- Why drones are important for monitoring?

build a single proplane

This model features the propeller which was the first mechanism for propulsion. Even today, acrobatic aircrafts use this technology to achieve their manoeuvres!

- How do pilots control an aircraft?
- Which aircraft holds the speed record?

build a chinook

Chinook is an iconic helicopter with two rotor blades. This powerful machine can carry numerous passengers and lift outstanding amount of load.

- What is moment of inertia?
- How helicopters counterbalance torque?

build a helicopter

Helicopters are a special category in aviation. Their ability to land and take off vertically makes them ideal for emergency and rescue scenarios. Build your helicopter model and discover:

- How do helicopters fly?
- Why helicopters need a tail rotor?

How Aircrafts Work ?

Technology of Machines

Travelling with an aircraft for holidays or for business is a very common activity. Airplanes are made to combine fast transportation and safety. The development of aviation is considered as one of the highlights in human history, since it has totally changed the way we travel around the Earth. Are you interested to become a pilot? How do pilots control a plane and do acrobatic manoeuvres? Which forces affect a flight? How do helicopters fly?



10

pages of theory and amazing facts!

2

pages of experimental activities!

4

pages of revision quiz!

16

pages of step by step instructions!



9+

Dimensions:
29 x 20.5 x 5.8 cm

Product code:
STEM24

page 76

10

pages of theory and amazing facts!

2

pages of experimental activities!

4

pages of revision quiz!

16

pages of step by step instructions!



9+

Dimensions:
29 x 20.5 x 5.8 cm

Product code:
STEM23

page 75

Levers & Linkages

Learn how Levers are used to increase a force for lifting heavy objects and how they can change the direction of motion. Find out how you can create models with complex motion by connecting many levers together and learn how these Linkages can be applied to various machines. Build 16 working models such as a seesaw, a movable weight scale, a wheelbarrow, a parking gate, a toy with moving figures, a pantograph and two types of linkages. You can find easy-to-follow building instructions for all models either online or in the booklet included. The booklet provides detailed explanations of the different scientific principles applied and incorporates innovative experimental activities for hands-on learning. A Quiz section is also available to challenge your newly acquired knowledge!

14

pages of theory and amazing facts!

4

pages of revision quiz!

7

pages of experimental activities!

13

pages of step by step instructions!

9+

Dimensions:
37 x 27 x 5.5 cm

Product code:
STEM01



build a wheelbarrow

Construct this model of a wheelbarrow and learn how it is used to carry heavy loads, using the elements of levers: fulcrum, effort and load; discovering the properties of second-class levers.

- How to carry heavy loads.
- What a second-class lever is.



build a letter scale

Construct a fully functional model of a letter scale and learn how small objects like envelopes and paper are weighed. Experiment and discover on your own the reasons why a scale might sometimes produce wrong indications.

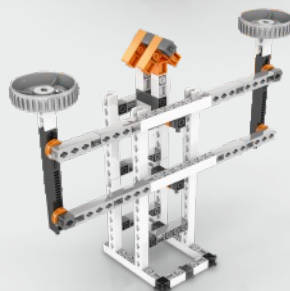
- How to weigh light objects.
- What are the reasons for weighing errors.



build a folding platform

This model of a folding platform is fully operational and will help you discover how several levers connected together create a linkage that helps us raise the platform. Experiment and discover how we can gain mechanical advantage using Levers.

- What a parallel linkage is.
- How levers and linkages work together.



build a parallel scale

This weight scale of parallel linkages will introduce you to the concept of linkages and help you understand how they work. Find out about parallel motion and how it is used to efficiently weight objects.

- What a linkage is.
- How parallel motion is created.

build a car with reverse turning wheels

Follow the instructions to build this model of a field tractor and learn how different sizes of wheels produce different results. Learn how the size of the axle also affects the mechanical advantage of the machine.

- How the size of the wheel matters.
- How the size of the axle affects motion.



build a car that turns

Construct this model and find out in what ways the axle and the wheel connect for different purposes. Learn how levers can be used to create a steering wheel, even though this particular one is turning in the wrong direction!

- How the wheel and axle connect.
- How a wheel is used as a lever.



build an airport staircase

Construct a model of an airport staircase that comes on wheels and find out why it is easier to climb an inclined ladder instead of moving straight up. Learn about the mechanical advantage that is gained when an inclined plane is used.

- How a staircase relieves us from effort.
- What the mechanical advantage of a plane is.



build a car with crane

This unique model of a car with crane will help you understand the principles of inclined planes and how they help lift heavy loads. Learn how the inclination of the plane affects the amount of effort applied.

- How inclined planes work.
- What inclination is.



Wheels, Axles & Inclined Planes

Learn how wheels and axles use friction to move objects easily and how big tyres compare to small tyres. Find out how an inclined plane can be used for lifting heavy objects and how another form of inclined plane, the wedge, is used in every day applications. Build 14 working models such as a launching platform, a door with knob, a well, an airport staircase, an experimental ramp and a splitting wedge. You can find easy-to-follow building instructions for all models either online or in the booklet included. The booklet provides detailed explanations of the different scientific principles applied and incorporates innovative experimental activities for hands-on learning. A Quiz section is also available to challenge your newly acquired knowledge!

18

pages of theory and amazing facts!

4

pages of revision quiz!

6

pages of experimental activities!

14

pages of step by step instructions!

9+

Dimensions:
37 x 27 x 5.5 cm

Product code:
STEM02



Pulley Drives

Learn how pulley drives can be used to transfer force with reduced friction and how they can increase force or speed at amazing levels. Pulleys have been used for thousands of years and are essential parts of complex machines in modern times, solving many technological problems. Build 8 working models such as a material lift, a stationary bike, a crane bridge, a blender, a construction crane and a windmill. You can find easy-to-follow building instructions for all models either online or in the booklet included. The booklet provides detailed explanations of the different scientific principles applied and incorporates innovative experimental activities for hands-on learning. A Quiz section is also available to challenge your newly acquired knowledge!

10



pages of theory and amazing facts!

2



pages of revision quiz!

3



pages of experimental activities!

15



pages of step by step instructions!

9+

Dimensions:
37 x 27 x 5.5 cm

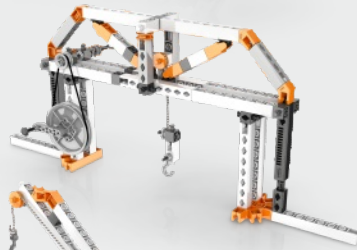
Product code:
STEM03



build a stationary bike

Play with this realistic model of a stationary bike and learn how simple machines work together in order to produce an outcome. Experiment and discover how velocity depends on the pulley's size.

- How simple machines work together.
- What the relation between force-velocity is.



build a crane bridge

Construct this model of a crane bridge and try to lift some objects, finding out how pulleys can help you lift heavy objects easily. Compare your model with different real life cranes and learn their differences.

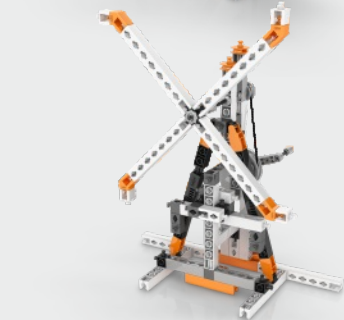
- How to lift heavy objects with a pulley.
- How real-life cranes work.



build a construction crane

This model of a construction crane is another example of the use of pulleys. Experiment and learn how force is transferred from one point to another and how we can gain mechanical advantage.

- How to transfer force.
- What the mechanical advantage of pulleys is.



build a windmill

Construct this model of a high speed windmill and learn how pulleys can be used to transfer power from one position to another. Experiment and discover how a small pulley can drive a larger one and how the speed changes from one pulley to the other.

- What a belt drive is and how it is used.
- How to increase or decrease pulley's speed.

build an oil pump

Construct a working model of an oil pump and find out how different simple machines work together with cams. Are you up to oil drilling? Turn the crank and see how everything changes position in front of your eyes.

- How you can combine machines.
- What input and output forces are.

build an eagle with flapping wings

This model of a flying eagle is designed to flap its wings by the use of the cam and crank mechanisms. Turn the crank and discover how rotational motion becomes linear. Observe how the flapping motion is produced by the employment of linkages.

- How cams and cranks work.
- How to change the type of motion.

build a fishing crane

Construct a unique fishing crane and learn how the crank helps set this device into motion. Compare your model with a real life one and find out the capabilities of a crank when connected to a string for lifting heavy loads.

- How cranks set machines into motion.
- How to lift heavy loads using a crank.

build a moving figure

Build a model of a moving figure that uses cams and learn how you can change the direction of motion and assemble 2 different types of cams. Play with this model and discover the properties of cams.

- How you can use Engino to make pear-cams.
- How you can create timing devices with cams.



Cams & Cranks

Learn how you can transmit power using cams and cranks and how they can be used to convert reciprocal to linear motion. Discover how these mechanisms are crucial elements of many machines even though they are not considered as "Simple Machines". Build 8 working models of cams & cranks such as a fishing crane, an oil pump, a moving figure, a moving bridge, a sewing machine and a flying eagle. You can find easy-to-follow building instructions for all models either online or in the booklet included. The booklet provides detailed explanations of the different scientific principles applied and incorporates innovative experimental activities for hands-on learning. A Quiz section is also available to challenge your newly acquired knowledge!

12



pages of theory and amazing facts!

3



pages of revision quiz!

3



pages of experimental activities!

12



pages of step by step instructions!

9+

Dimensions:
37 x 27 x 5.5 cm

Product code:
STEM04



Gears & Worm Drives

Learn how gears can easily reduce or increase speed, change force or transfer motion from one position to another. Discover how worm drives are used to greatly reduce rotational speed and how screws can convert rotational motion to linear, while greatly increasing force. Build 12 working models such as an experimental crane, a gearbox, a carousel, a helicopter, a screw press and a crane with a rotating arm. You can find easy-to-follow building instructions for all models either online or in the booklet included. The booklet provides detailed explanations of the different scientific principles applied and incorporates innovative experimental activities for hands-on learning. A Quiz section is also available to challenge your newly acquired knowledge!

16

pages of theory and amazing facts!

3

pages of revision quiz!

6

pages of experimental activities!

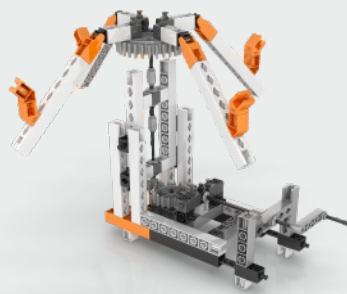
17

pages of step by step instructions!

9+

Dimensions:
37 x 27 x 5.5 cm

Product code:
STEM05



build a carousel

A visit to the playground excites both children and grown-ups! Build this model of a fully functional carousel and see how you can rotate the seats at very high speeds. Observe how the seats move higher and higher as they rotate faster and faster!

- How to increase rotating speed.
- How to change the direction of motion.



build a helicopter

This helicopter has high speed rotor blades, powered by 2 crown gears with a high gear ratio. The gears are used to change the direction of motion from horizontal to vertical, while motion is transferred by a series of interconnected shafts.

- How to increase rotating speed.
- How to change the direction of motion.



build a crane with rotating arm

Follow the instructions to build a model of a crane with a rotating arm and discover the relationship between the worm drive's characteristics and the gears' revolutions. Learn about the usefulness of the ratchet mechanism and how it works.

- Relation between gear's teeth and revolutions.
- What a ratchet mechanism is.



build a folding platform with a screw

The folding platform model uses the Engino worm as a screw, similar to the vice model. It converts rotational motion to linear and pushes or pulls the scissor-type linkages to raise or lower the platform.

- How to lift objects using linkages.
- How a screw behaves like an inclined plane.

build a cable-stayed bridge

This exciting model of a cable-stayed bridge is another type of a cable bridge. One famous example of this bridge is the Rio-Antirion bridge in Greece, the world's longest multi-span cable-stayed bridge.

- How long spans can be supported effectively.
- How tension gives stability to the bridge.



build a suspension bridge

This fascinating model of a suspension bridge will introduce you to a special type of bridges, the cable bridges! Learn through experimentation how the tension of the cables supports the deck of the bridge.

- Which are the different types of cable bridges.
- What are their advantages



build an arch bridge

Build a realistic model of an arch bridge and learn the properties of the arch! See how this bridge can become stable and support a lot of weight by transferring it to the abutments.

- How weight is redistributed.
- Which are the elements of an arch bridge.



build a truss bridge

Build two models of a truss bridge, one with the trusses over the deck and one with the trusses under the deck! Learn how triangulation offers great stability and rigidity to a structure. Discover the different types of simple bridges.

- Which are the different types of truss bridges.
- How triangulation strengthens a structure.



Structures

Learn all about buildings and how they literally support our lives! Experiment with different types of bridges and find out how their architecture design provides massive weight support. Discover all the types of forces applied and how engineers manage to reduce their effects. Build 9 working models such as a house, a pyramid and various types of bridges: beam, arch, truss, cable-stayed and suspension bridge. You can find easy-to-follow building instructions for all models either online or in the booklet included.

The booklet provides detailed explanations of the different scientific principles applied and incorporates innovative experimental activities for hands-on learning. A Quiz section is also available to challenge your newly acquired knowledge!

10

pages of theory and amazing facts!

2

pages of revision quiz!

4

pages of experimental activities!

18

pages of step by step instructions!

9+

Dimensions:
37 x 27 x 5.5 cm

Product code:
STEM06



Newton's Laws

Learn all about Newton's laws of motion which are the basis of classical mechanics that still describe most everyday life situations. Experiment with kinetic and potential energy in order to discover the properties of energy and how it is transformed from one form to the other. Build 8 working models such as a ballistic catapult, a gravity fan, a collision car, a moving cabin, a balloon powered plane and a dragster. You can find easy-to-follow building instructions for all models either online or in the booklet included. The booklet provides detailed explanations of the different scientific principles applied and incorporates innovative experimental activities for hands-on learning. A Quiz section is also available to challenge your newly acquired knowledge!

12

pages of theory and amazing facts!

3

pages of revision quiz!

6

pages of experimental activities!

16

pages of step by step instructions!

9+

Dimensions:
37 x 27 x 5.5 cm

Product code:
STEM07

page 83



build a gravity fan

Build a model of a fan which can rotate by the force of gravity! Place the construction between 2 tables and allow the weight of 4 wheels to fall down. As it falls, the string attached rotates the fan blades faster and faster.

- How potential energy converts to kinetic.
- The acceleration of gravity and speed.



build a dragster car

This fascinating model of a dragster is not only a huge model (60 cm long) but is also self propelled by an elastic spring. Learn by experimenting how the energy stored in a tight rubber band can convert to kinetic energy and speed!

- How to store energy in a rubber band.
- Converting energy from one form to another.



build a ballistic catapult

In ancient times, cities were protected by walls and the only way to destroy them was with the catapult. This model simulates the real catapult's function and can be tested to see how the force of gravity affects motion and projectile distance.

- How gravity affects the path of motion.
- Newton's 3rd law of action and reaction.

build a space shuttle

Discover the legendary shuttle of space exploration! 355 astronauts and 180 satellites, including components for the International Space Station were sent with the Space Shuttle program!

- How could it land back on Earth?
- What scientific purpose did it serve?



build a landing pod

Learn how manned missions to the moon became possible thanks to the Lunar Module. Astronauts of the Apollo missions used this construction to land on the rough terrain of our natural satellite.

- How could it return to the spacecraft?
- Can such a pod be used for landing on Mars?



build a space robot

Build this model which resembles the lunar rover that was used in Apollo missions to the moon. Learn how the rover was hinged inside the landing pod and how such space robots can help in space exploration.

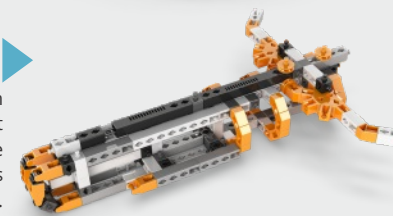
- How fast was the lunar rover?
- Why the rovers were left at the moon?



build a future space

Build this model of a futuristic spacecraft which can travel to distant stars and galaxies. The current technological research is very active on improving the efficiency of space travelling and bringing novel ideas into action.

- Why is still difficult to travel at distant galaxies?
- What is space tourism?



Astronomy Travelling to Space

Learn how rockets are lunched into space and how spacecrafts explore the solar system. Learn about the mission to the Moon and how astronauts live in the International Space Station (ISS). Discover the science of space exploration and the hazardous threats of space environment. Build 5 models such as a rocket, a landing pot, scale, a space robot and a space shuttle. You can find easy-to-follow building instructions for all models either online or in the booklet included. The booklet provides detailed explanations of the different scientific principles applied and incorporates innovative experimental activities for hands-on learning. A Quiz section is also available to challenge your newly acquired knowledge!

11

pages of theory and amazing facts!

1

pages of revision quiz!

2

pages of experimental activities!

23

pages of step by step instructions!

9+

Dimensions:
31 x 23 x 5.5 cm

Product code:
STEM08

page 84



Paleontology

How Dinosaurs Lived

Learn all about the dinosaurs and how they lived in the prehistoric era on Earth. Build 5 motorized dinosaur models such as a brontosaurus, a stegosaurus, a triceratops, a pterodactyl and an ankylosaurus and bring them to motion. You can find easy-to-follow building instructions for all models either online or in the booklet included. The booklet provides detailed explanations of the different scientific principles applied and incorporates innovative experimental activities for hands-on learning. A Quiz section is also available to challenge your newly acquired knowledge!



build a triceratops

Construct a motorized model of this 3-horned prehistoric creature! An iconic dinosaur who weighted more than an elephant. Set this dinosaur into motion and learn some amazing facts about its physical size and nutrition.

- What does its name mean?
- When were first fossils discovered?



build a brontosaurus

Build one of the most iconic dinosaurs who lived during the Jurassic period! Brontosaurus was a gigantic dino with a long neck and tail. Bring this dino to life with a motor and learn how its used its body as armour!

- How big a was the brontosaurus?
- Why paleontologists seek for fossils?



build an ankylosaurus

Ankylosaurus was one of the last dinosaurs remaining before the large extinction event that occurred at the end of the Mesozoic Era. The prominent feature of Ankylosaurus was its sharp armour of knobs, plates and spikes.

- Which animal has a similar armour?
- How big were its sharp spikes and bones?



build a pterodactyl

Did you know that dinosaurs had cousins who could fly? Contrary to their large size and mass, pterodactyls had the ability to fly and attack their pray from above. Learn more about this flying reptile of the Jurassic Period.

- Do they have descendants who survived?
- How could they fly?

build a solar chopper car

Construct this exciting model of a chopper car and experience the power of the sun. Learn how solar panels work and how weight can be manipulated to control speed.

- How solar panels work.
- How weight affects speed.



build a solar winch crane

Create this fascinating model of a winch crane and use it for lifting light loads. Learn how force is transferred from one point to another, what the mechanical advantage is and how it can be used.

- How real life cranes work.
- How force is transferred.



build a solar robot

Combine two modern technological advancements into one model: the solar powered robot. Observe the energy transformation from solar to electrical.

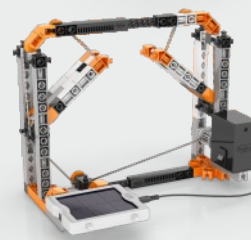
- What the latest technology advancements are.
- How energy changes forms.



build a drawbridge

Build this amazing model of a drawbridge and become a traffic controller for cars, ships and pedestrians. Learn how pulleys and strings work together to move objects in the desired direction, using the power of the sun.

- How real life bridges work.
- How pulleys help to move objects.



Solar Power

Climate change and global warming urge scientists to take action and save our planet by reducing carbon emissions. The sun can provide free energy for all of our needs, however, we need to convert it to a useful form. This set includes one 3V solar panel that powers an electrical motor, along with instructions for 16 solar powered models such as a chopper car, a fan, a plane, a robot and a winch crane. You can find easy-to-follow building instructions for all models either online or in the booklet included. The booklet provides detailed explanations of the different scientific principles applied and incorporates innovative experimental activities for hands-on learning. A Quiz section is also available to challenge your newly acquired knowledge!

11



pages of theory and amazing facts!

1



pages of revision quiz!

2



pages of experimental activities!

15



pages of step by step instructions!

12



pages of theory and amazing facts!

3



pages of revision quiz!

3



pages of experimental activities!

12



pages of step by step instructions!

9+

Dimensions:
37 x 27 x 5.5 cm

Product code:
STEM09



9+

Dimensions:
43 x 28 x 5.9 cm

Product code:
STEM30



Simple Machines

This set is a combination of the basic 5 sets of "Discovering STEM" series and covers all simple machines mechanisms. These mechanisms offer a mechanical advantage and are crucial elements of many machines and devices. They are designed to multiply or reduce force, increase or decrease speed and convert one type of motion to another. Build 60 working models that cover the subjects of levers, the wedge, the wheel and axle, the screw, the inclined plane, the pulley, as well as the more advanced gears and linkages! You can find easy-to-follow building instructions for all models either online or in the booklets included. These comprehensive booklets provide detailed explanations of the different scientific principles applied and incorporate innovative experimental activities for hands-on learning. Quiz sections for each chapter are also available to challenge your newly acquired knowledge!

70

pages of theory and amazing facts!

16

pages of revision quiz!

25

pages of experimental activities!

71

pages of step by step instructions!

9+

Dimensions:
43 x 28 x 5.9 cm

Product code:
STEM40



levers & linkages

wheels, axles & inclined planes

pulley drives

gears & worm drives

cams & cranks



Fluid Dynamics

One of the most important areas in physics is the study of fluids and their fundamental principals. Water and air are the two most important elements for life and both are categorized as fluids. Air motion is what determines the temperature in our rooms. Pipelines are providing water to our homes. Industrial and construction machines use hydraulics to easily lift heavy objects. Airplanes and ships change direction by using aerodynamics and hydrodynamics respectively. Have you ever wondered why objects sink in water, while others float? How does blood flow in our body? How do water tanks operate? With this set you can build 6 different models, including a boat and a submarine, as well as various experimental rigs to learn all about fluid dynamics! Printed building instructions for 4 models are included and 2 more models are available online and through the free kidCAD app for smart devices.

14

pages of theory and amazing facts!

+

syringes for experimentation

5

pages of experimental activities!

31

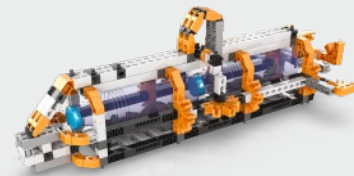
pages of step by step instructions!

9+

Dimensions:
41 x 28 x 5.9 cm

Product code:
STEM45

page 89



build a submarine

Colourful fish, strange species, coral landscapes, shipwrecks and even ancient cities are only 5% from the total treasures one can find in deep oceans! Build your own submarine and experiment with it to learn how the principles of buoyancy help drive these ships.

- What Archimedes Principle is.
- How submarines use buoyancy to dive deep.

build a siphon device

Have you ever wondered how you can empty the fluid from a tank when there is no hole on its bottom? The siphon device can transfer fluids from one container to another! Experiment with this model and magically swap water between the two cups.

- What a siphon device is.
- How can you create an "upward" flow.

build the communicating vessels

Since ancient Rome, water was transferred throughout towns by connecting large containers of water. Build and discover how communicating vessels work and observe the level of water inside the tube.

- How communicating vessels work
- What artesian wells are.

build a hydraulic platform

Hydraulics have multiple applications in engineering. Build an experiential platform which moves by the use of hydraulic pressure from pistons. Learn how pressure is transferred inside tubes and watch it lifting heavy objects with little effort.

- What Pascal law states.
- How a hydraulic press works.



10ml plastic syringe to water the plants with precision.

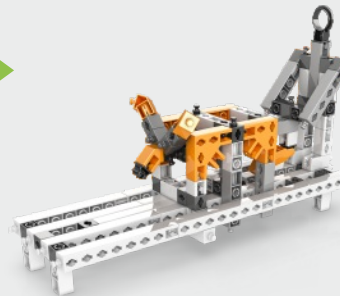


seeds and soil not included

build an ox-driven plough

Learn about the history of agriculture and how people used draft animals (e.g. oxen or bulls) to cultivate the soil. Recreate a scene of a common farming technique from the past by constructing this exciting model of an ox-driven plough.

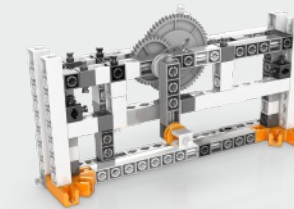
- What is the history of agriculture?
- How was the ox-driven plough used?



build a gearbox

Build this simple model of a gearbox and experiment with different gear set-ups. Learn how to calculate the gear ratio even when more complex set-ups are assembled. The windows of your greenhouse open and close using gears.

- What is a gearbox?
- How to calculate the gear ratio?



Botanic Laboratory

Build this amazing, fully functional greenhouse model and see your seeds fertilize and grow! Interested to become a young agriculturist? Control the conditions inside your greenhouse and monitor how your plants are affected by temperature, moisture and light levels. Take care of your plants and provide them with proper ventilation through your greenhouse movable parts. Learn about photosynthesis and the life cycle of beans.



x12 pots & plastic tray included for planting and growing seed.

11

pages of theory and amazing facts!

3

pages of revision quiz!

2

pages of experimental activities!

22

pages of step by step instructions!

9+

Dimensions:
46 x 29 x 5.9 cm

Product code:
STEM47

page 90



Architecture Set

The Architecture set demonstrates the ability of ENGINO® to build huge models of impressive size and style, appropriate for ages of 8+. Children discover different types of structures and build two oversized models of the Sydney Bridge and the Eiffel Tower! The set is completed with smaller size models including a cable-stayed bridge, suspension bridge, arch bridge, truss bridge and house from printed instructions booklet and online. The hands-on activity book contains all that students need to know about technological advancements in architecture, with theory and exciting experiments and quizzes with their solutions.

14

pages of theory and amazing facts!

2

pages of revision quiz!

4

pages of experimental activities!

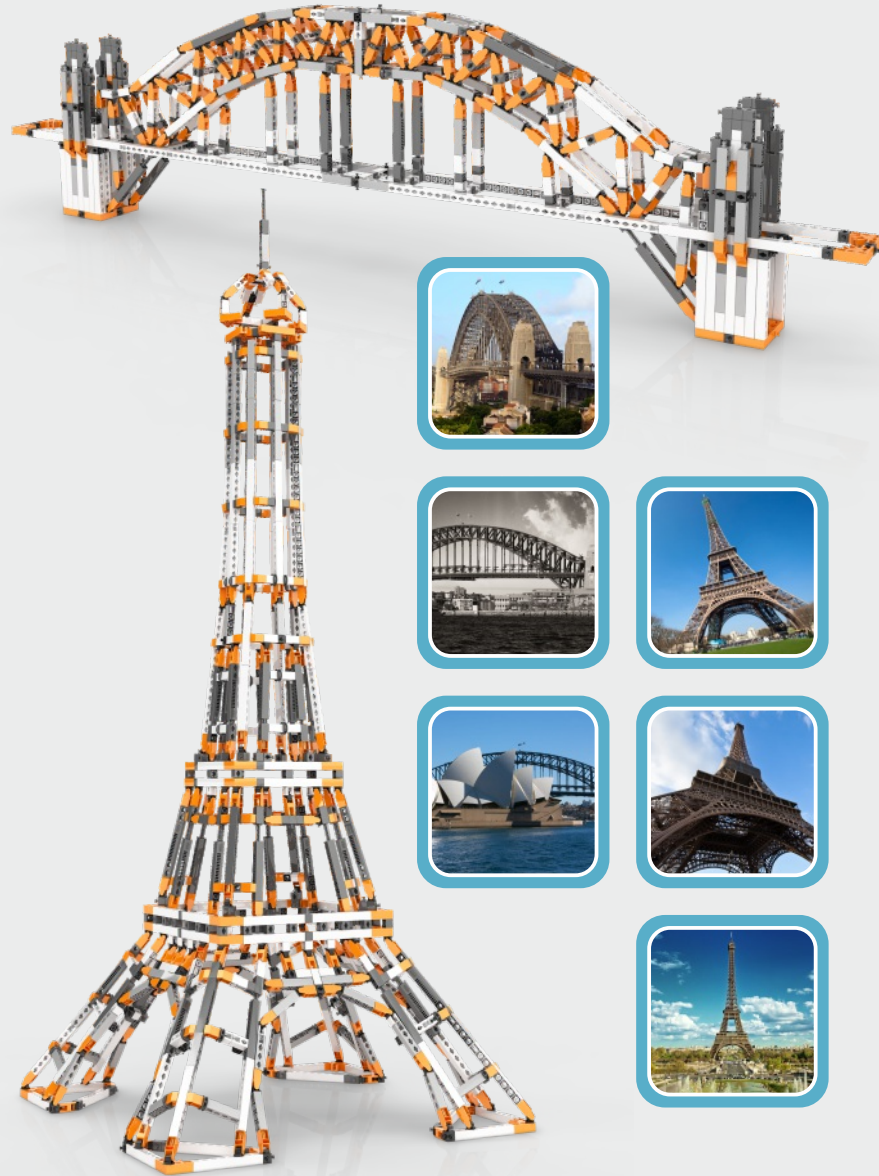
44

pages of step by step instructions!

9+

Dimensions:
49 x 37 x 16 cm

Product code:
STEM55



Amusement Park Set

In amusement parks, the main attractions are often the exciting, fast rides or the romantic, slow wheels that offer spectacular views from above. This set includes one geared motor to power four large-scale models of such rides: Ferris wheel, London Eye, merry-go-round and booster ride. Additionally, you can experiment with gears by building four smaller models such as a gearbox, an experimental crane, a carousel and a planetarium. You can find easy-to-follow building instructions for all models either online or in the booklet included. The booklet provides detailed explanations of the different scientific principles applied and incorporates innovative experimental activities for hands-on learning. A Quiz section is also available to challenge your newly acquired knowledge!

8

pages of theory and amazing facts!

2

pages of revision quiz!

3

pages of experimental activities!

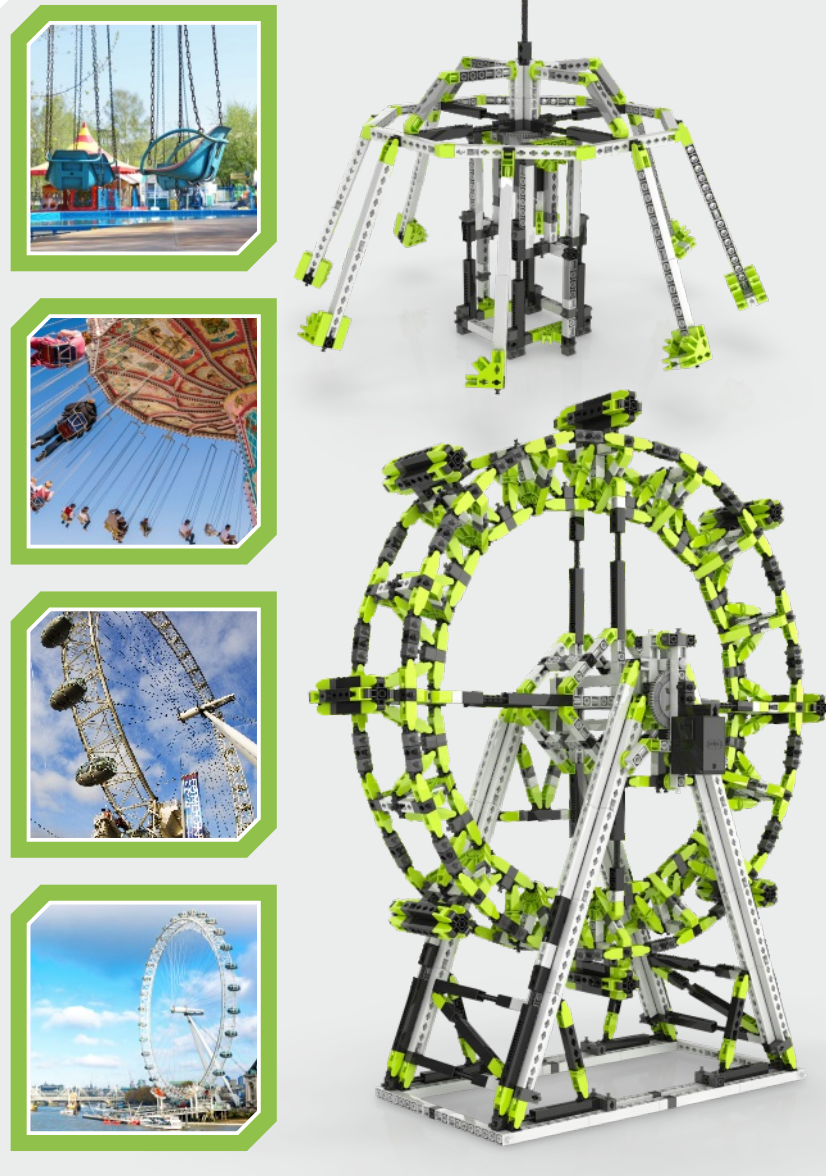
37

pages of step by step instructions!

9+

Dimensions:
49 x 37 x 16 cm

Product code:
STEM56



ROBOTICS **MINI** ERP 2.0

DEVELOPED FOR TEACHING ROBOTICS PROGRAMMING AT PRIMARY AND SECONDARY EDUCATION

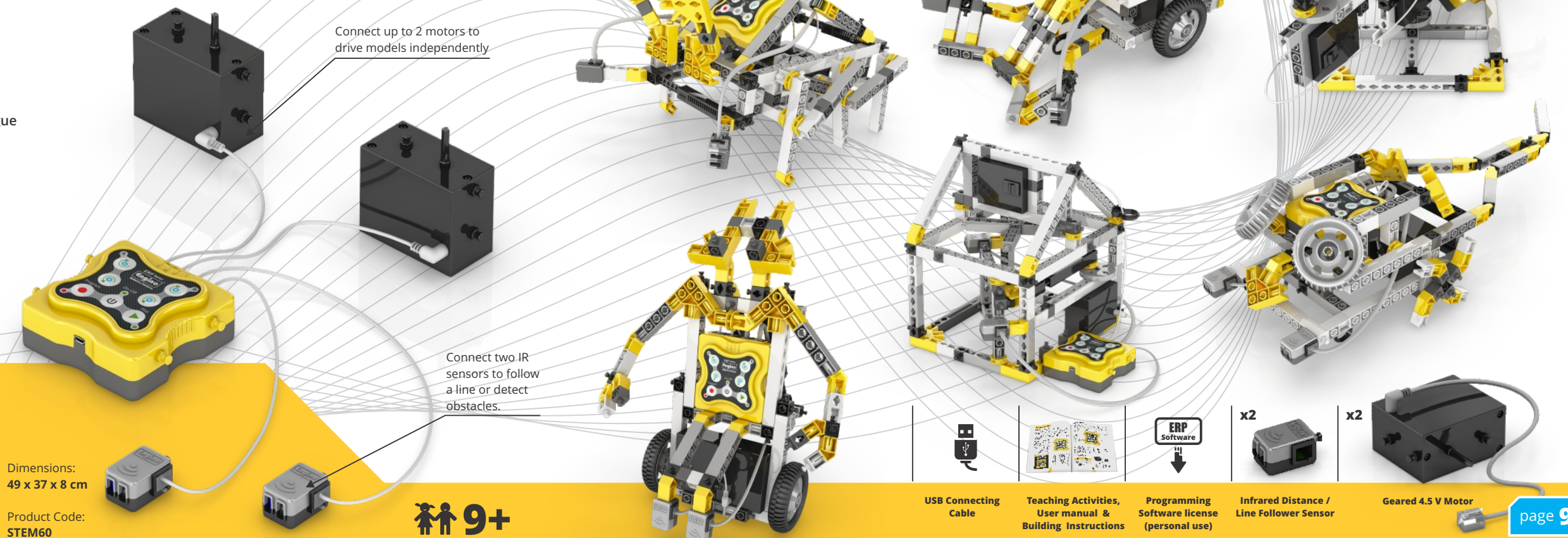


ERP SPECIFICATIONS:

- ARM Cortex-M4 32-bit processor, 64 MHZ.
- 512 kB flash/64 kB RAM.
- USB full speed port (12 Mbit/s).
- Onboard membrane buttons for manual programming.
- 4 input - output ports. Connect up to 2 sensors digital or analogue and up to 2 motors (servo or analogue).
- Power source: 3 x AAA batteries (not included).

Utility app:

EnginoRobot BT™ app:



Connect up to 2 motors to drive models independently

Connect two IR sensors to follow a line or detect obstacles.

Dimensions:
49 x 37 x 8 cm

Product Code:
STEM60



USB Connecting Cable



Teaching Activities, User manual & Building Instructions



Programming Software license (personal use)

x2



Infrared Distance / Line Follower Sensor

x2



Geared 4.5 V Motor





After the massive success of our Discovering Mega models, a new bespoke line has been developed for the more enthusiastic users of ENGINO who aspire to build a sizeable MEGA model and have it on permanent display. Of course, models can be disassembled, and users can reconfigure the ENGINO parts to develop their ideas. A plethora of features unleashes creativity and imagination and presents the ultimate building challenge. The new MEGA BUILDS sets are more premium and come in large plastic storage tubs for safely keeping the parts. Kids might add more parts to these plastic storage tubs from their other ENGINO sets. Due to the size and complexity of the models, all building instructions are provided in a virtual interactive format, available through our free-to-download kidCAD app for iOS and Android. The first four sets of the range include a motorized London Eye, a 1.5m tall Eiffel Tower, the NASA challenger space shuttle with its launch rockets, and a dual-motor geared helicopter.



MEGA BUILDS

SPECIAL EDITION

- Eiffel Tower
- London Eye
- Space Shuttle
- Dual Motor Helicopter



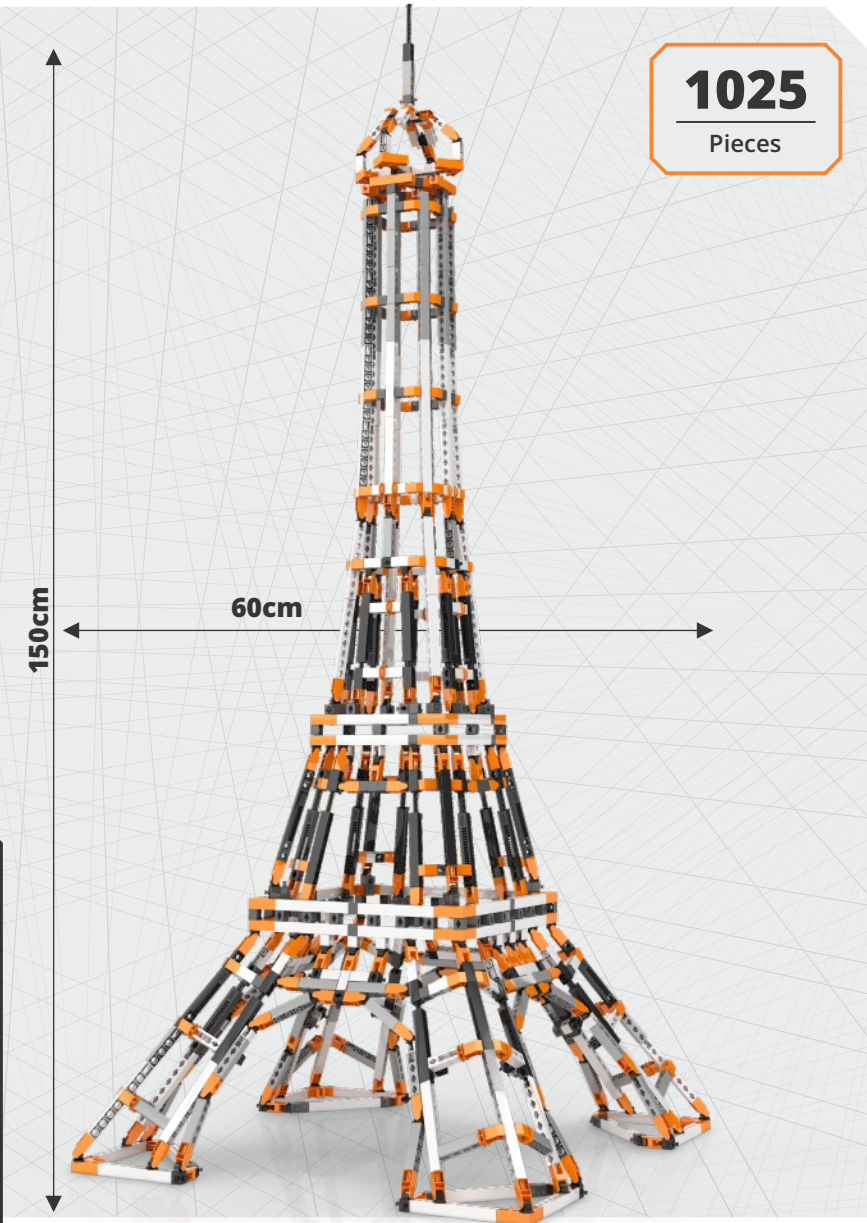
EIFFEL TOWER

 | **9+**
Ages Appropriate

1
Model to Build

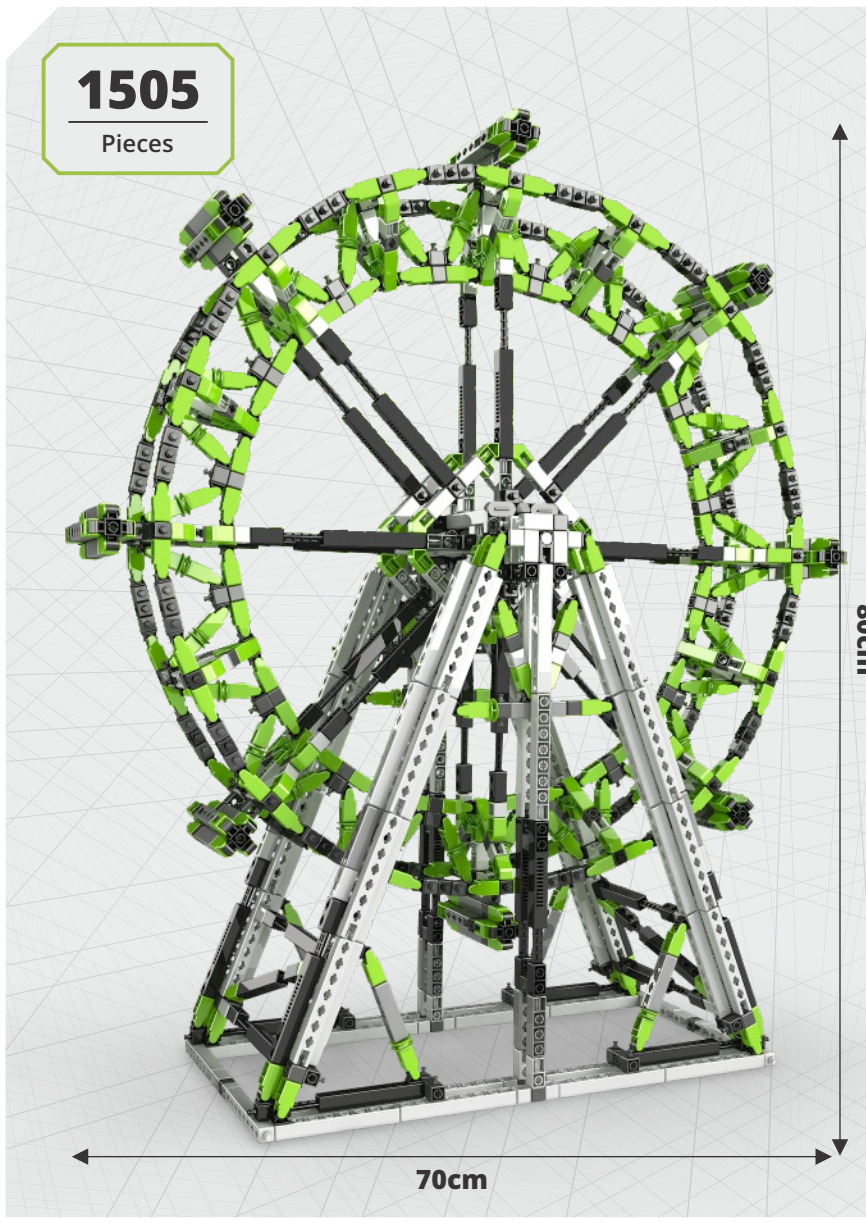

Online 3D Instructions

Dimensions:
43 x 31 x 15 cm
Product code:
MB05



1025
Pieces

1505
Pieces



LONDON EYE

 | **9+**
Ages Appropriate

1
Model to Build


Online 3D Instructions

Dimensions:
43 x 31 x 15 cm
Product code:
MB10



**MOTOR
POWER**

SPACE

SHUTTLE



Ages Appropriate



Model to Build



Online 3D Instructions

Dimensions:
43 x 31 x 15 cm

Product code:
MB15



1135

Pieces

65cm

50cm

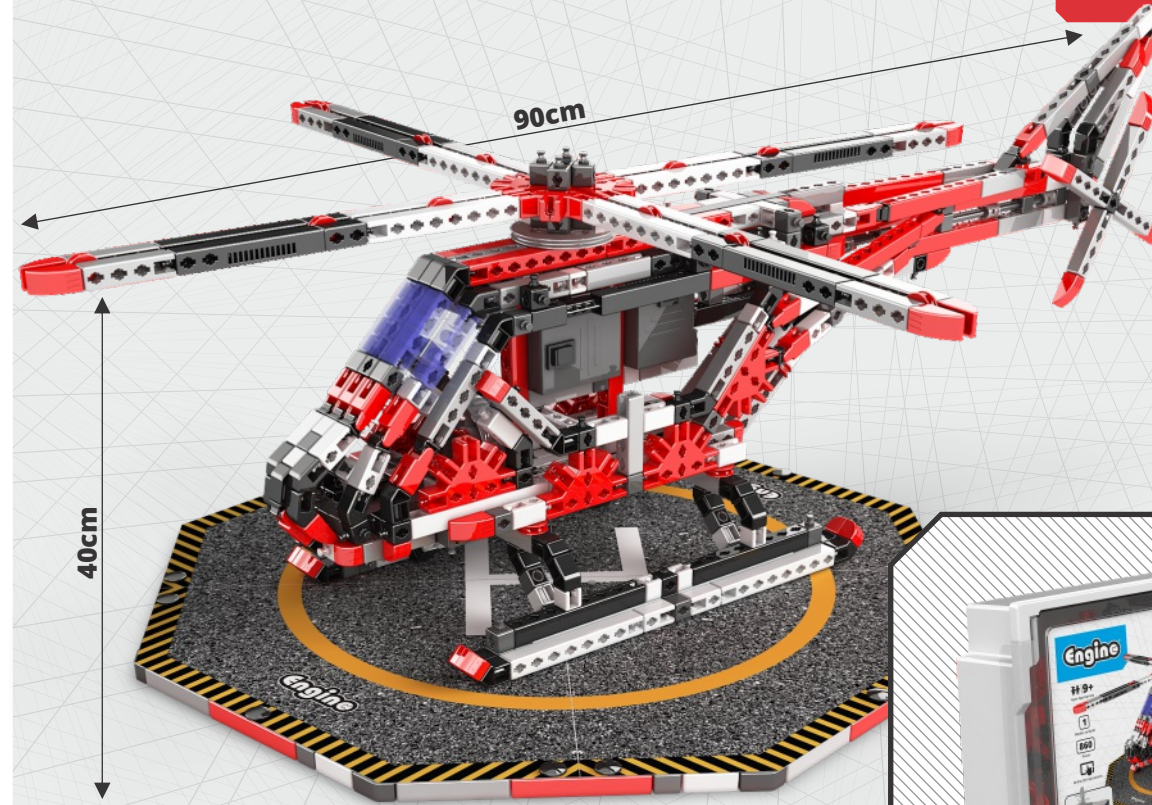


870

Pieces

90cm

40cm



DUAL MOTOR

HELICOPTER



Ages Appropriate



Model to Build



Online 3D Instructions

Dimensions:
43 x 31 x 15 cm

Product code:
MB20

+X2
MOTOR
POWER



The new **CREATIVE ENGINEERING™** series is the most compact presentation of ENGINO® system, ideal for online stores, saving warehouse space and logistics cost. The best-selling models of our traditional ENGINO® ranges have been bundled together in these sets, empowering children to become young engineers and inventors. The series places special emphasis on creativity by allowing many models to be created from the same set. The models are STEMIFIED™ by activating new, pedagogically advanced, digital content that covers major STEM principles with theory and experimental activities. Each set comes in a plastic tub for easy storage and continual play. The “Maker Junior” set covers preschool kids aging from 4-6 with the award-winning Qboidz® system, while the “Maker Master” is the ideal solution for older kids of ages 7-12+. “Maker Master” sets start from the “20 models in 1” tub and scale up in complexity and creative potential with the “60 models in 1” tub that includes also motorized control. Even though ENGINO® system is suitable for both boys and girls, a special edition named “Maker girl” is also available, aiming to more actively engage girls in to STEM.



CREATIVE™ engineering **maker Junior**

- Maker Junior 10 in 1 models

CREATIVE™ engineering **maker Girl**

- Maker Girl 20 in 1 models

CREATIVE™ engineering **maker Master**

- Maker Master 20 in 1 models
- Maker Master 30 in 1 models
- Maker Master 40 in 1 models
- Maker Master 60 in 1 models

CREATIVE™ engineering **maker Pro**

- Maker Pro 100 in 1 models

Dimensions:
29 x 16.5 x 21 cm

Product code:
CE101MJ

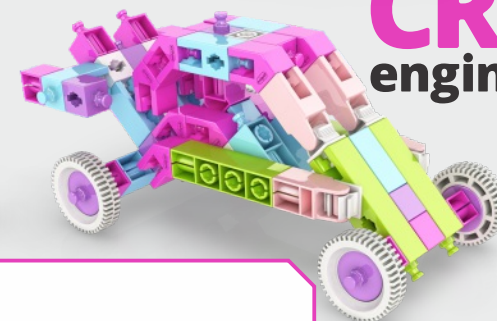


CREATIVE™ engineering **maker Junior** 10 IN 1 MODELS

4+
Appropriate
ages

3
years
warranty

Printed
Instructions



CREATIVE™ engineering **maker Girl** 20 IN 1 MODELS

7+
Appropriate
ages

3
years
warranty

Printed
Instructions

Dimensions:
25 x 13 x 18.5 cm

Product code:
CE202MG



CREATIVE™ engineering maker Master 20_{in1} MODELS

7+
Appropriate
ages

3
years
warranty



Dimensions:
25 x 13 x 18.5 cm

Product code:
CE201MM

CREATIVE™ engineering maker Master 30_{in1} MODELS

7+
Appropriate
ages

3
years
warranty



Dimensions:
25 x 13 x 18.5 cm

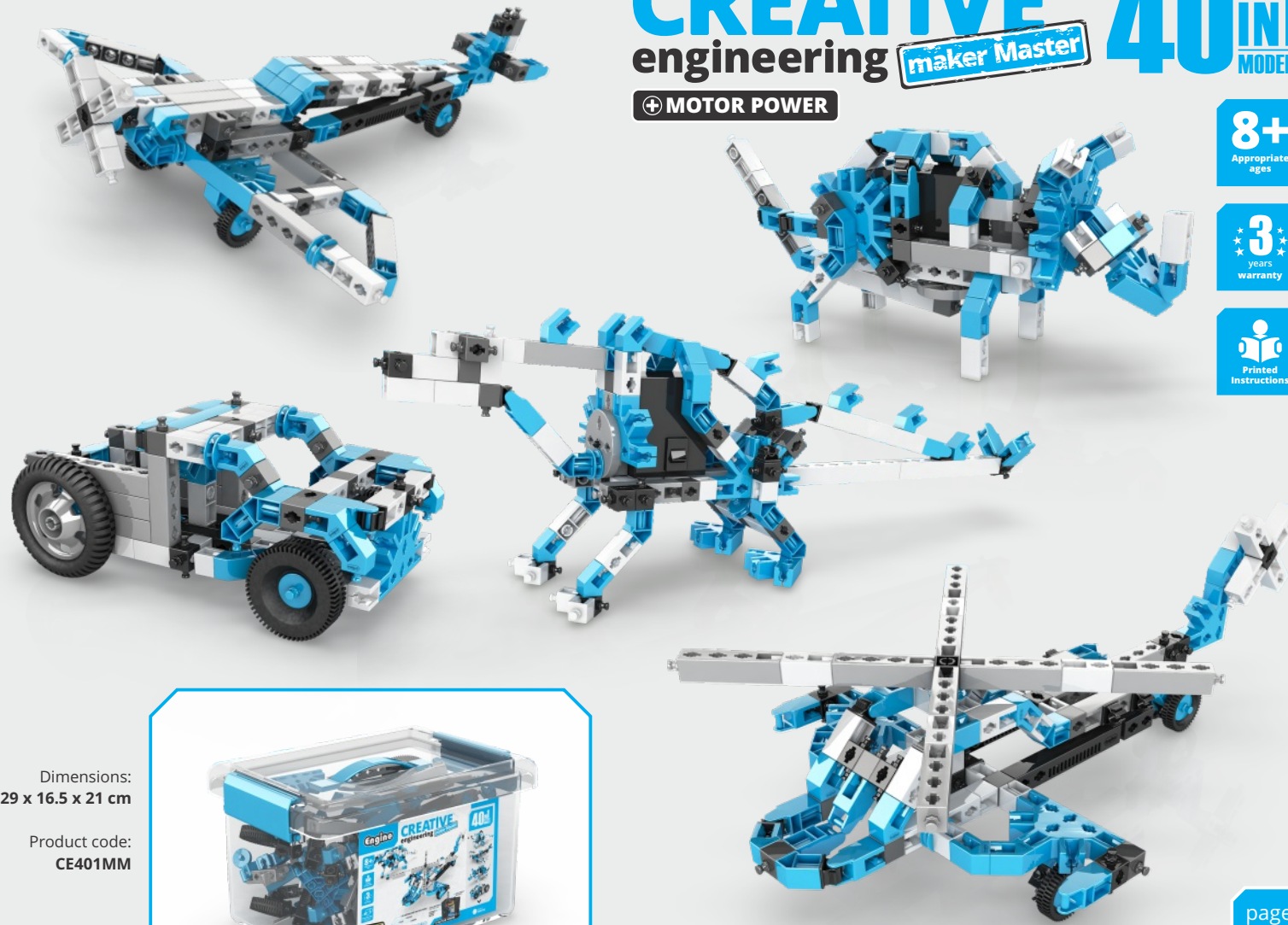
Product code:
CE301MM

CREATIVE™ engineering maker Master 40_{in1} MODELS

MOTOR POWER

8+
Appropriate
ages

3
years
warranty



Dimensions:
29 x 16.5 x 21 cm

Product code:
CE401MM

CREATIVE™ 60 in 1

engineering maker Master MODELS

➕ MOTOR POWER

8+
Appropriate ages

3
years warranty

Printed Instructions



Dimensions:
29 x 16.5 x 21 cm

Product code:
CE601MM

CREATIVE™ 100 in 1

engineering maker Pro MODELS

➕ ELECTRONICS & MOTOR POWER

10+
Appropriate ages

3
years warranty

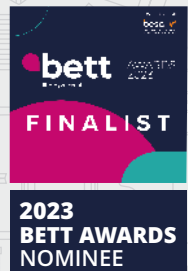
Printed Instructions



Dimensions:
35 x 20 x 24.5 cm

Product code:
CE101MP

Welcome to the Adventures of Gino and Gina! Our two main heros embark on different challenges to discover the laws of Nature, Science and Technology! The new subscription box line by ENGINO® has been developed after years of research to bring STEM to homes on a monthly basis, engaging children of various ages with the process of learning by doing. Moving a step beyond the traditional building system, this series is a multi-layered product which besides the construction of models, also includes the theoretical background with different monthly fun and experimental activities, expandable puzzles and board games that grow with every new episode, digital apps with advanced interactive and AR content and -above all- a thematic story with amazing comics that merge every layer into one big adventure! Our researchers have developed the first season for each of our main age groups 3+, 6+ and 9+, with 12 episodes available for every age group. Gino and Gina, our main comic-book heroes, are depicted at the same age of each adventure's audience. The new ENGINO® subscription boxes can be sold on a monthly basis as part of an omnichannel strategy. Alternatively, since each episode is the continuation of the previous one, it can be sold as a retail product on the shelves as a stand alone bundle set of 12 episodes, without requiring a subscription.



12 EPISODES Bundle Sets

3+

ADVENTURES OF GINO & GINA

WILDLIFE RESCUE

6+

SPACE ADVENTURES OF GINO & GINA

9+

TIME-TRAVEL ADVENTURES OF GINO & GINA

12 EPISODES Bundle Set

ADVENTURES OF GINO & GINA

WILDLIFE RESCUE

12 Activity Books

24 Building Models

12 Story Books

Board Game Puzzles

3+

Appropriate Ages

3

Years Warranty

Printed Instructions

Digital Content (AR)

Rewards

Dimensions: 42.5 x 35 x 29.7 cm

Product code: SBJ-B12

12 EPISODES Bundle Set

SPACE ADVENTURES OF GINO & GINA

6+

Appropriate Ages

3

Years Warranty

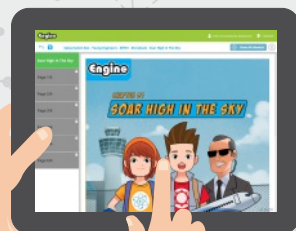


Printed Instructions

Space Poster



Digital Content



12 Activity Books



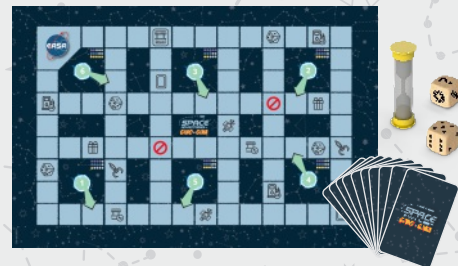
24 Building Models



12 Story Books



Board Game



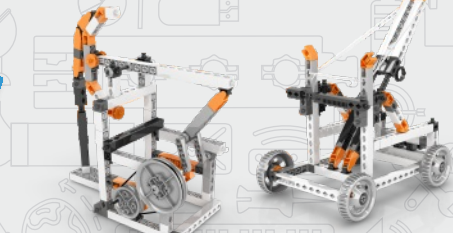
Dimensions:
42.5 x 35 x 29.7 cm

Product code:
SBY-B12

12 Activity Books



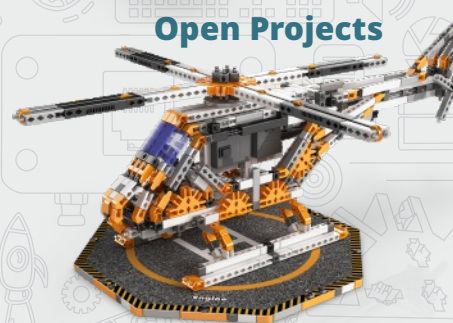
48 Building Models



12 Story Books



Open Projects



Dimensions:
42.5 x 35 x 29.7 cm

Product code:
SBM-B12

12 EPISODES Bundle Set

TIME-TRAVEL ADVENTURES OF GINO & GINA

9+

Appropriate Ages

3

Years Warranty



Printed Instructions

