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CELEBRATING  
**15**  
YEARS OF  
INNOVATION

**Engino**  
play to invent™

QBOLDZ

PICO SPINNERS

INVENTOR

INVENTOR MOTORIZED

INVENTOR GIRL

JCB MACHINERY SERIES

STEM HEROES

ACADEMY OF STEAM JUNIOR

ACADEMY OF STEAM

DISCOVERING STEM



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Inertia & Energy Conversion

Products subject to change without notice. Information is correct at the time of print.

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some brand awards

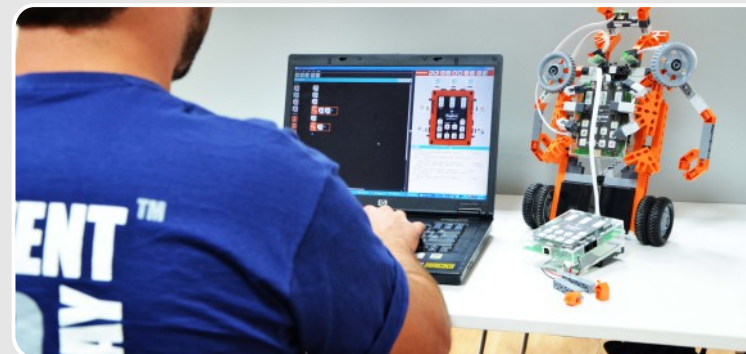
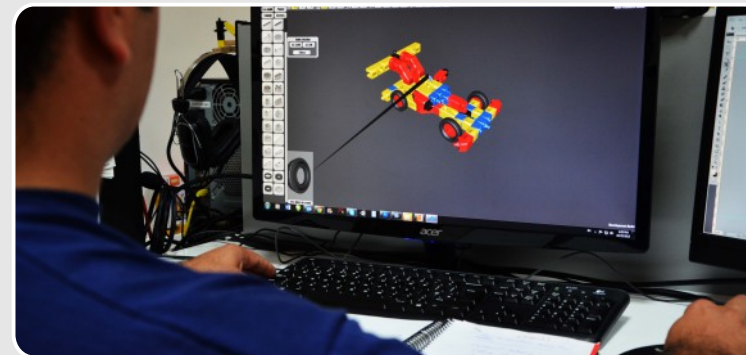
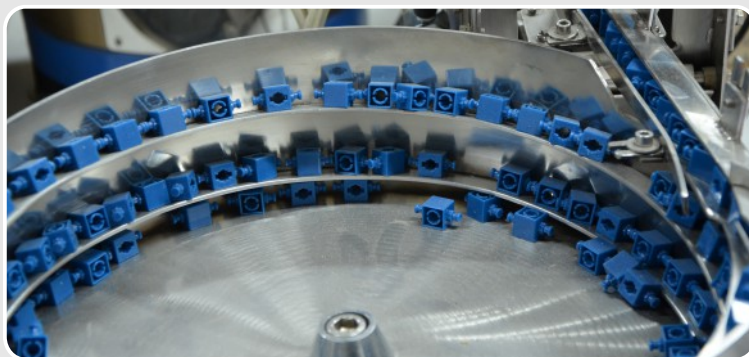




## Company History

### A Toy System Emerging from Education

Engino.net Ltd 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. This success is reflected in the recent expansion to a new fully automated factory in Cyprus, setting new standards for production in Europe by 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.





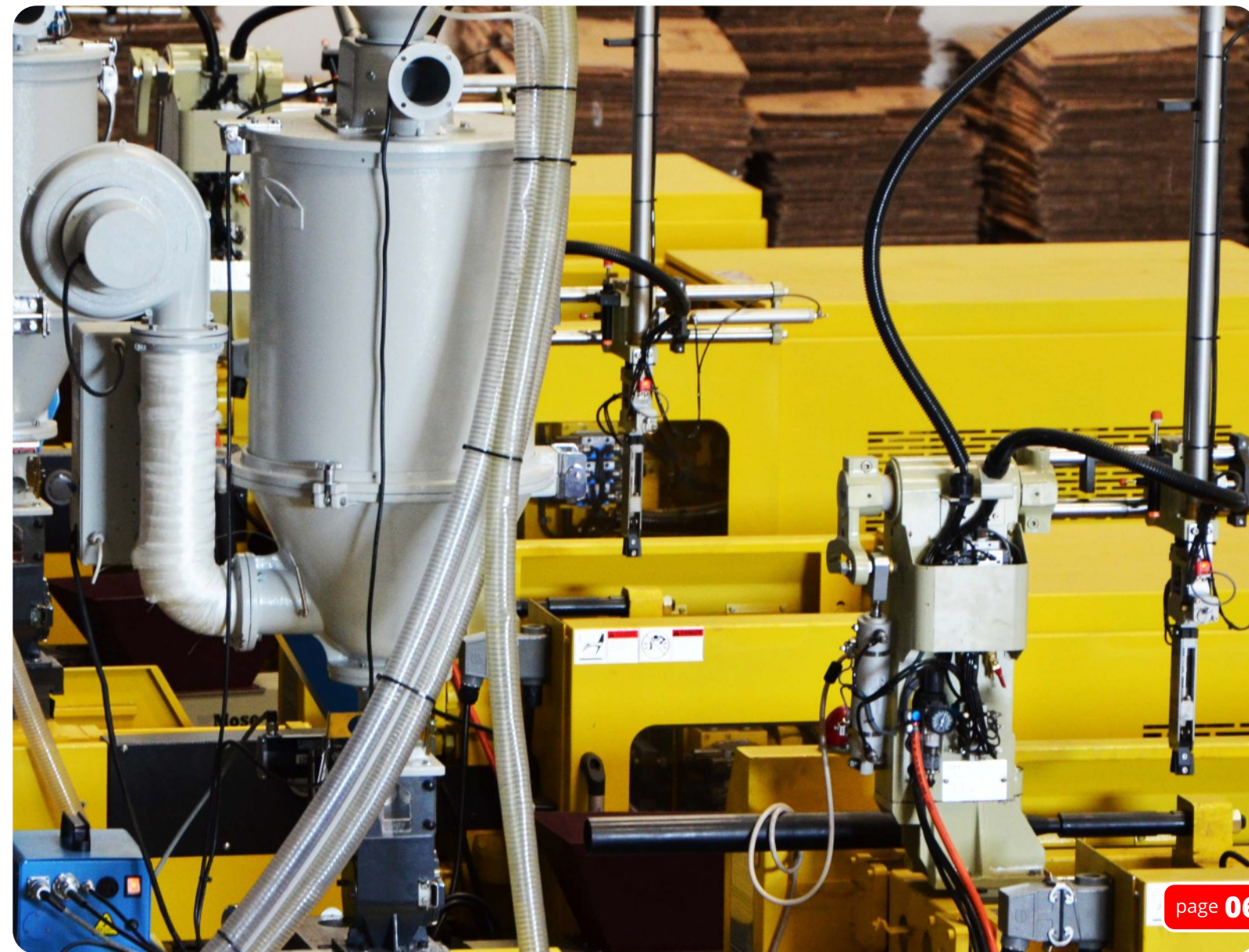
# Manufacturing

## 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

ENGINO® complies with all European toy standards and is being tested by international independent organizations. ENGINO® products are certified in Germany for EN71 parts 1-3, ASTM F963-11, CPSC, Pthalates, EN62115, PAHs. As of 2013, Engino.net Ltd is also certified for ISO9001 management system by TUV organization.

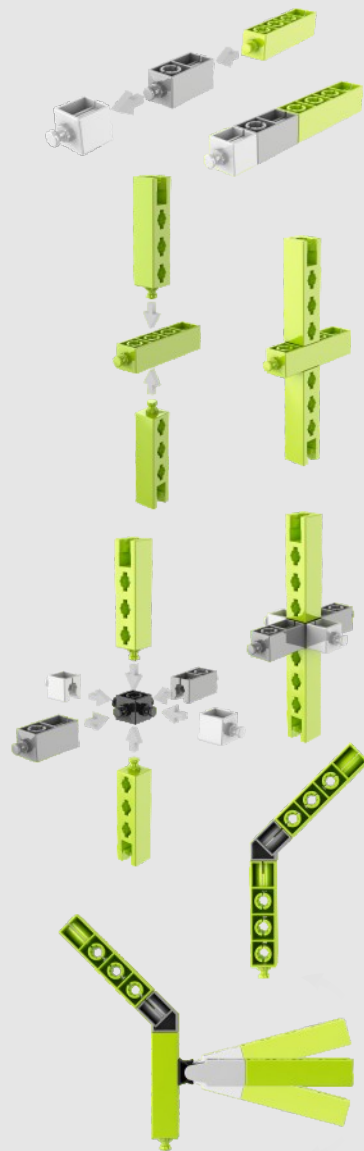
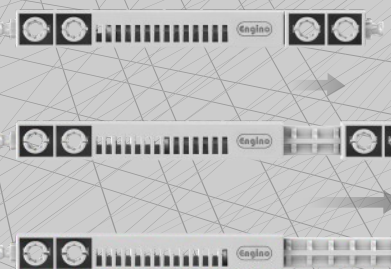




**ENGINO® TOY SYSTEM** is perhaps the most advanced and versatile three dimensional construction toy in the market today. The patented design of the parts allows connectivity of up to 6 sides simultaneously, while the unique extendable components lead to builds that were previously unthinkable, unleashing children's creativity and imagination.

- Expandable at any time, in any direction!
- Rods are also connectors!
- All parts snap-fit and stay together!
- Any length is possible!
- Build big and easy!
- Simple to use!
- Maximized modification capabilities!
- Low number of different parts!
- Fewer components can build more models!
- Creative and Educational!

#### The Extendable Rod:



#### Building in one direction

The ENGINO® rods can be connected in-line without the intermediate need of a connector, almost reducing to half the quantity of parts required to build models.

#### Building in two directions

While the assembled rods look uniform with nothing protruding, they can provide building directions vertically and sideways by simply snap fitting another beam to one of the bi-directional side cavities. This innovative design allows snap assembly on both sides simultaneously and greatly enhances the expandability of the system.

#### Building in three directions

The system is capable of tackling with the same ease all other building directions! All directions of the 3D space are accessible by combining the rods with the various types of ENGINO® connectors.

#### Connecting in fixed angles

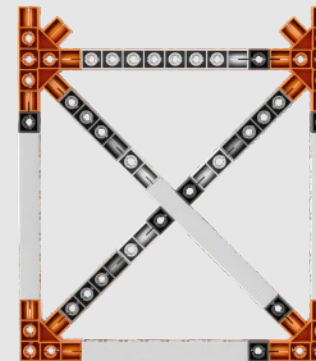
While ENGINO® system is the easiest system to build models that need connections in 90°, it is equally functional when attempting to build more complex models that require connections in 45°.

#### 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 allowing any angle of the 3D space to be created.

#### Triangulating

Structures consisting of right angle triangles can easily be created, ideally with side lengths of 15 units. The advantage of ENGINO® system is that the 2D structure may at any time be converted to 3D without needing any additional connectors. The TEE and ELBOW connectors provide a change in the plane of building, without having any elements protruding. The model may be modified at any time and there is no need to substitute the connectors with different ones. This not only reduces the number of different parts required to make a model but adds to the simplicity and functionality of the system.



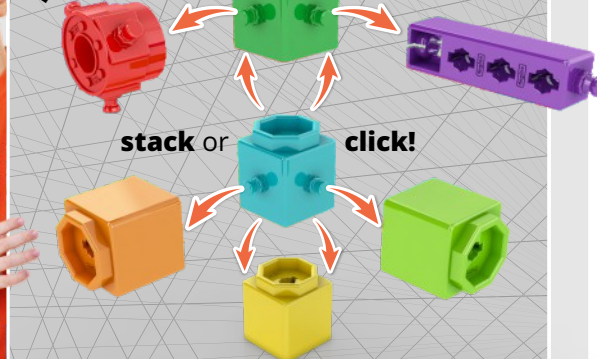
#### Connecting everywhere

Although ENGINO® rods can behave as bricks achieving various lengths, these are restricted by the size of the smallest part. But where all other construction systems fail, ENGINO® can do the job! With ENGINO® system any length is possible with the patented extendable rods. 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.



## System

NEW PRE-SCHOOL SYSTEM SINCE 2017



- New patented design!
- Increase dexterity and perception of 3D space!
- Traditional building by stacking bricks!
- Enhanced creativity by connecting bricks with rods in any direction!
- Fully compatible with the ENGINO® TOY SYSTEM!





## POS Displays

ENGINO® offers a selection of displays from floor stands to shelf banners and plexiglass cases in different sizes for in-store promotion and branding. Custom-made display solutions are also developed.



## In-Flight Sets



The award winning ENGINO® Toys are now available to our young friends and their parents to pass time creatively during their flight! The ENGINO® exclusive sets of "12 in 1 aircrafts" and "8 in 1 aircrafts" are included in the in-flight magazines of more than 30 airlines flying all around the world, as of 2016!





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 3-6 is recommended.



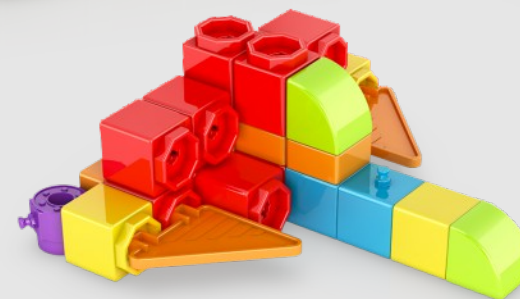
- Qboidz 2in1 Sets
- Qboidz 4in1 Sets
- Qboidz 8in1 Sets
- Qboidz 14in1 Set
- Qboidz 20in1 Set
- Qboidz 30in1 Set

STEM inspired!



Dimensions:  
19.5 x 26 x 5.5 cm

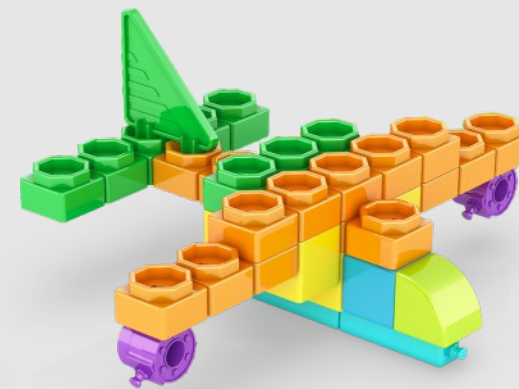
Product code:  
QB02A



Dimensions:  
19.5 x 26 x 5.5 cm

Product code:  
QB02B

## Qboidz 2in1 set (crocodile)



printed  
instructions

## Qboidz 2in1 set (goldfish)



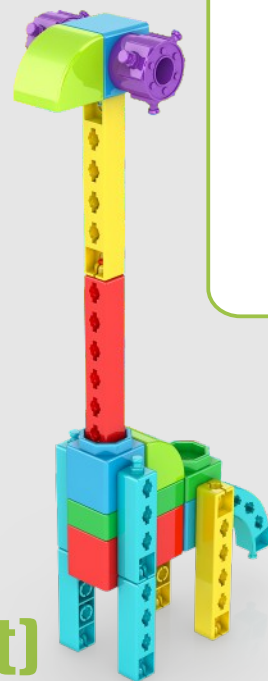
printed  
instructions



## Qboidz 2in1 set (giraffe)



printed  
instructions



Dimensions:  
19.5 x 26 x 5.5 cm

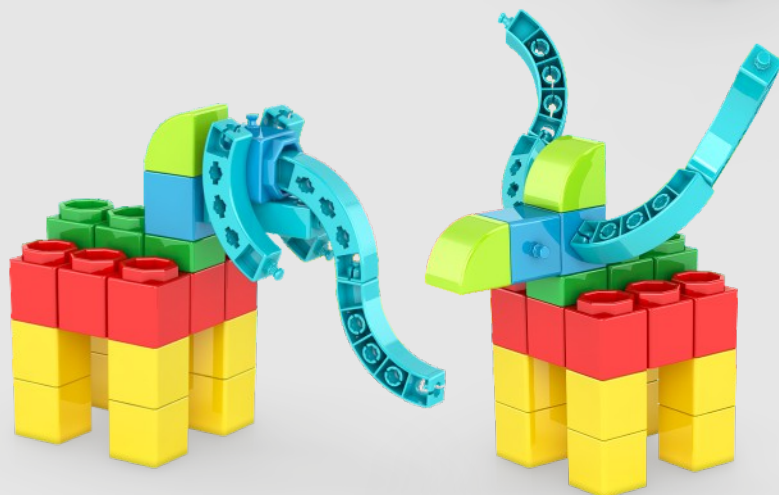
Product code:  
QB02C



## Qboidz 2in1 set (elephant)



printed  
instructions

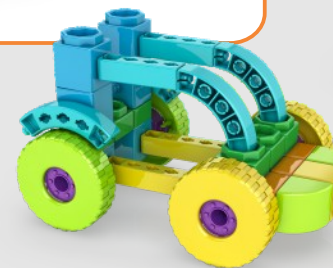
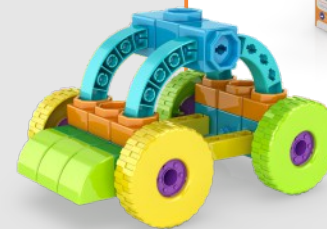


Dimensions:  
19.5 x 26 x 5.5 cm

Product code:  
QB02D

Dimensions:  
23 x 31 x 5.5 cm

Product code:  
QB04A



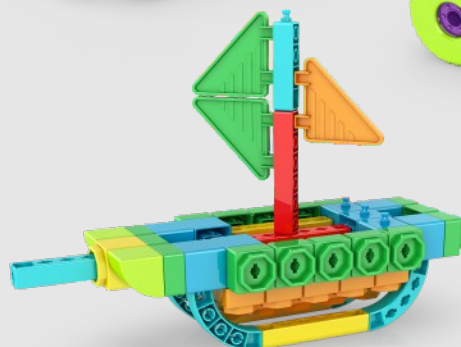
## Qboidz 4in1 set (tractor)



printed  
instructions



online  
instructions



## Qboidz 4in1 set (spaceship)



printed  
instructions

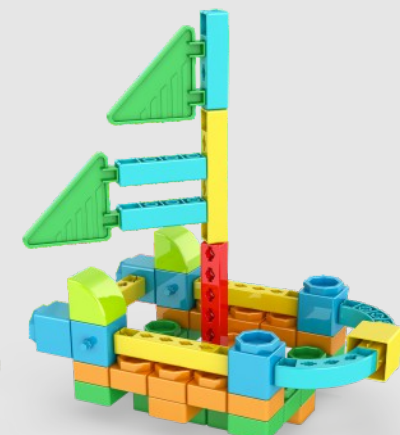
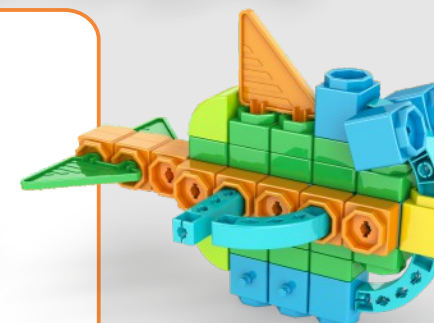


online  
instructions



Dimensions:  
23 x 31 x 5.5 cm

Product code:  
QB04B





## Qboidz 4in1 set (stunt plane)



printed  
instructions



online  
instructions



Dimensions:  
23 x 31 x 5.5 cm

Product code:  
QB04C

## Qboidz 8in1 set (alligator)



printed  
instructions



online  
instructions

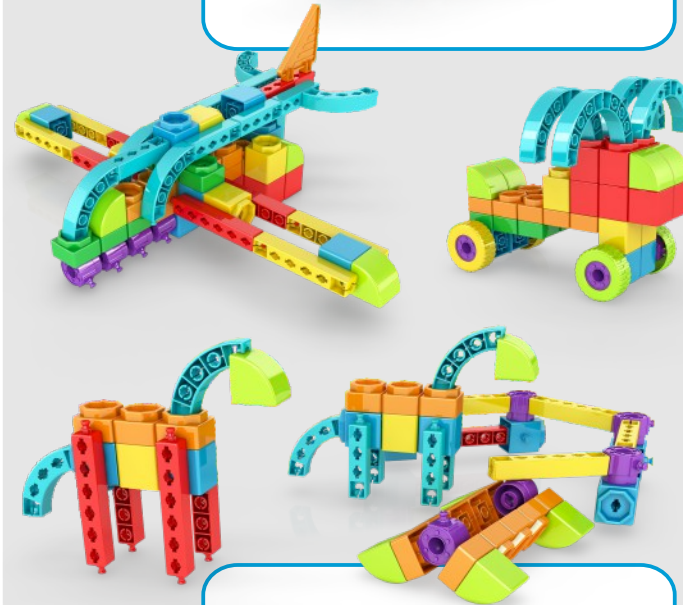


Dimensions:  
27 x 37 x 5.5 cm

Product code:  
QB08A

Dimensions:  
27 x 37 x 5.5 cm

Product code:  
QB08B



Dimensions:  
27 x 37 x 5.5 cm

Product code:  
QB08C

## Qboidz 8in1 set (owl)



printed  
instructions



online  
instructions



## Qboidz 8in1 set (alien robot)



printed  
instructions



online  
instructions





# Qboidz 14in1 set



printed  
instructions



online  
instructions



Dimensions:  
28 x 41 x 5.9 cm

Product code:  
QB14

# Qboidz 20in1 set



printed  
instructions



online  
instructions



Dimensions:  
29 x 46 x 5.9 cm

Product code:  
QB20



# Qboidz 30in1 set

2-6

2

printed  
instructions

28

online  
instructions



Dimensions:  
33 x 49 x 6.9 cm

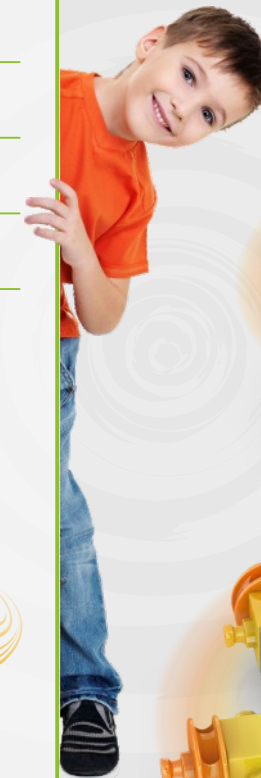
Product code:  
QB30



- Pico Spinner **PS01**
- Pico Spinner **PS02**
- Pico Spinner **PS03**
- Pico Spinner **PS04**

# 2in1

Spinners have always been a favorite toy of children. ENGINO® has developed this series of colorful Pico Spinners, where creativity meets fun! Each of the 4 sets of the Pico Spinners contains a special spinner support component, a printed color disk and a library of standard ENGINO® parts. Two models 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.





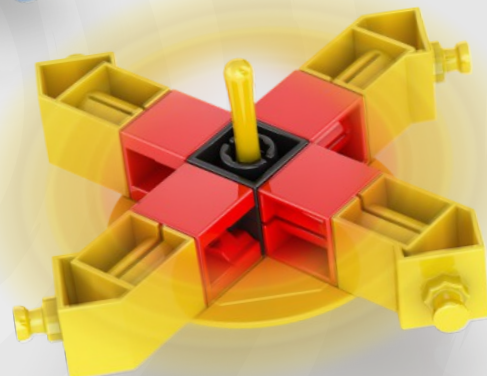
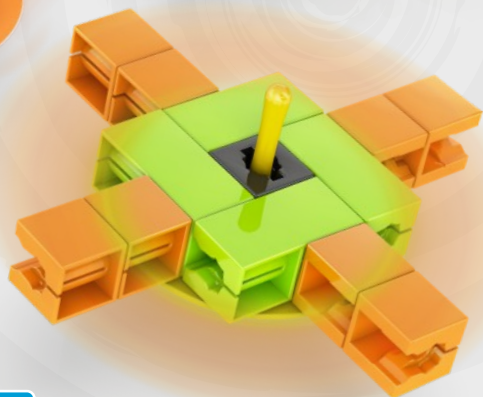
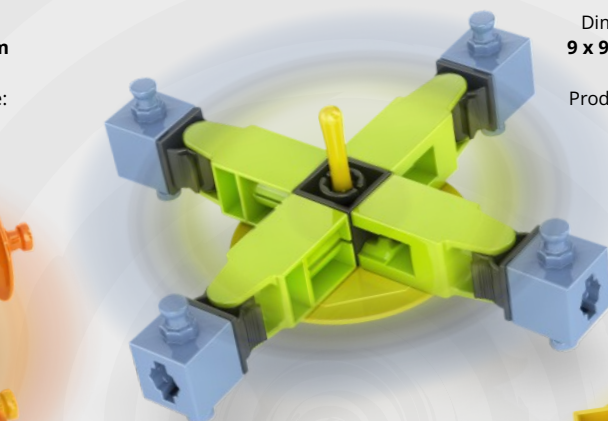
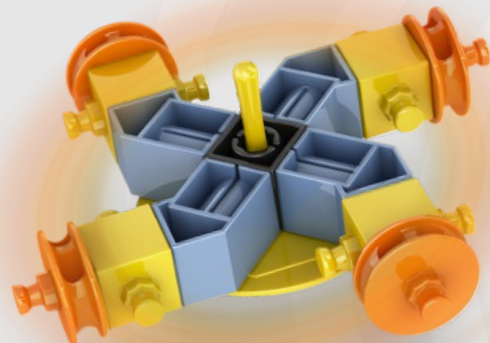


6-12+



Dimensions:  
9 x 9 x 4.5 cm

Product code:  
PS01



6-12+

Dimensions:  
9 x 9 x 4.5 cm

Product code:  
PS02



6-12+



Dimensions:  
9 x 9 x 4.5 cm

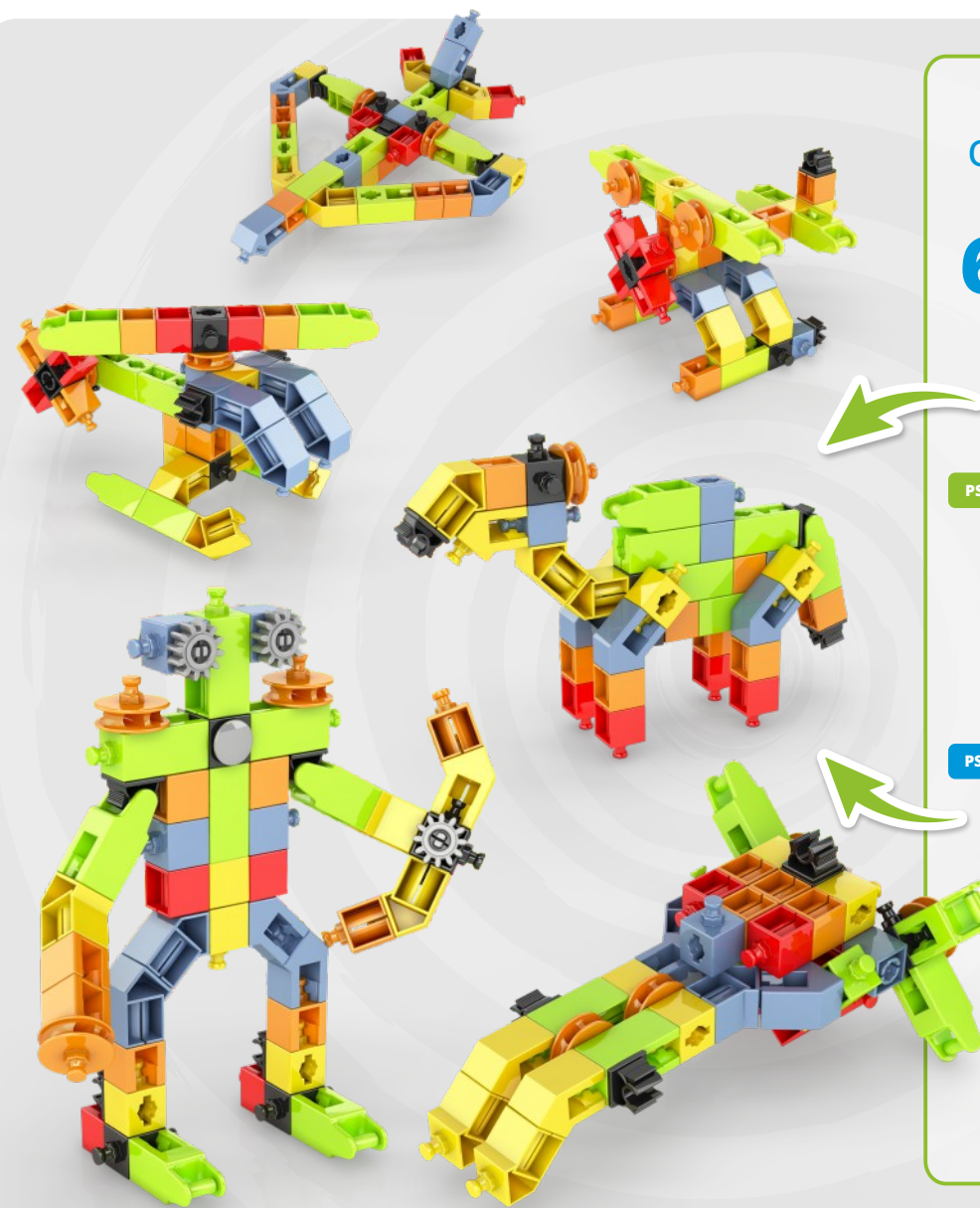
Product code:  
PS03



6-12+

Dimensions:  
9 x 9 x 4.5 cm

Product code:  
PS04



combine all **4 sets**  
to create  
**6 larger** models!



PS01



PS02



PS04



PS03



Building instructions  
Instructions de montage  
Bauanleitung  
Manuale d'istruzioni  
Instrucciones de montaje  
Инструкция по сборке  
[www.engino.com/pico](http://www.engino.com/pico)



The INVENTOR series has a thematic approach with multi model capabilities, covering cars, motorbikes, aircrafts and industrial machines. The parts have new fresh colors and models are optimized for aesthetics and functionality. Each set has maximized number of models, starting from the smallest 4 models sets and moving up to 16 models sets. Printed instructions are included for 3 main models in each set. Remaining models can be assembled by downloading the free internet instructions, available at ENGINO®'s website.



# INVENTOR®

- Cars 4-8-12-16 Models
- Bikes 4-8-12-16 Models
- Aircrafts 4-8-12-16 Models
- Industrial 4-8-12-16 Models

Users can also view the models in three dimensional format; rotate, zoom, explode and implode with the new ENGINO® smart phone and tablet app, available at Google Play, App store and Windows mobile!

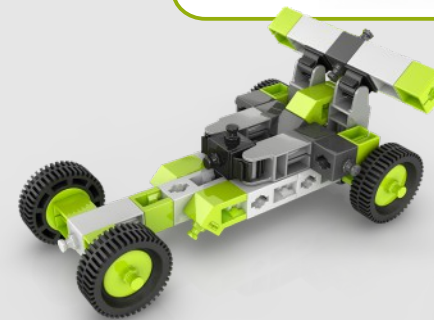


**3D interactive instructions**  
to download on your smart device

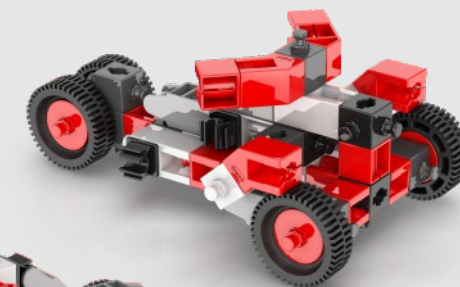
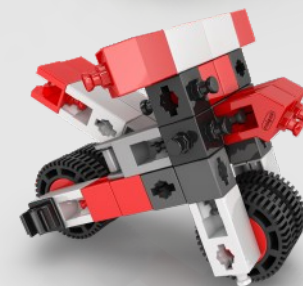
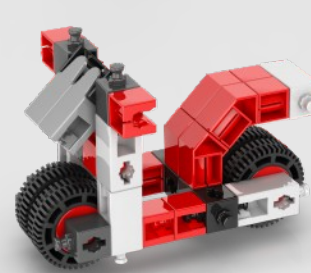


Dimensions:  
16 x 22 x 5.5 cm

Product code:  
0431



## cars 4 models



## bikes 4 models



Dimensions:  
16 x 22 x 5.5 cm

Product code:  
0432





# aircrafts 4 models

6-12+

3 models

1 model



Dimensions:  
16 x 22 x 5.5 cm

Product code:  
0433

# industrial 4 models

6-12+

3 models

1 model



Dimensions:  
16 x 22 x 5.5 cm

Product code:  
0434

Dimensions:  
19.5 x 26 x 5.5 cm

Product code:  
0831



# cars 8 models

6-12+

3 models

5 models



# bikes 8 models

6-12+

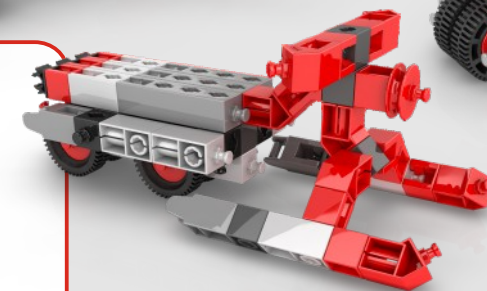
3 models

5 models



Dimensions:  
19.5 x 26 x 5.5 cm

Product code:  
0832



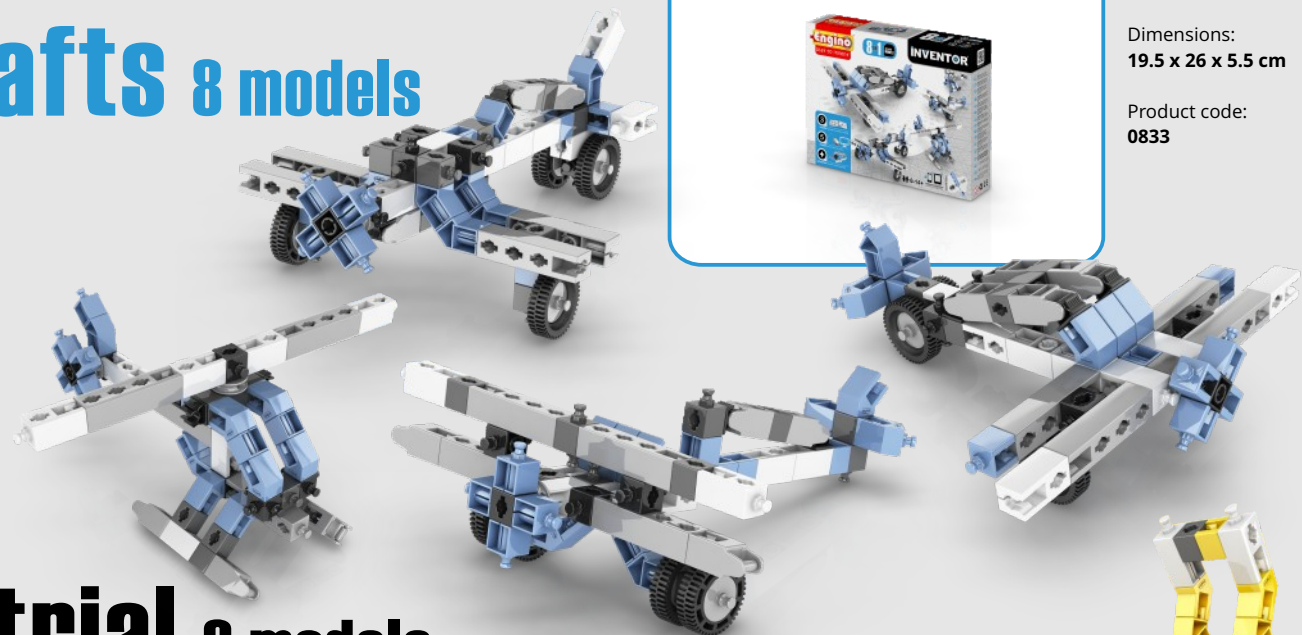


# aircrafts 8 models

6-12+

3 models

5 models



Dimensions:  
19.5 x 26 x 5.5 cm

Product code:  
0833

# industrial 8 models

6-12+

3 models

5 models



Dimensions:  
19.5 x 26 x 5.5 cm

Product code:  
0834

Dimensions:  
23 x 31 x 5.5 cm

Product code:  
1231

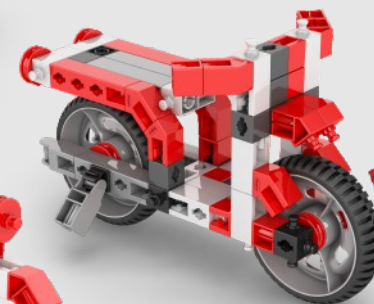
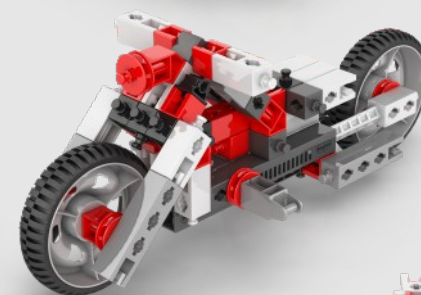


# cars 12 models

6-12+

3 models

9 models

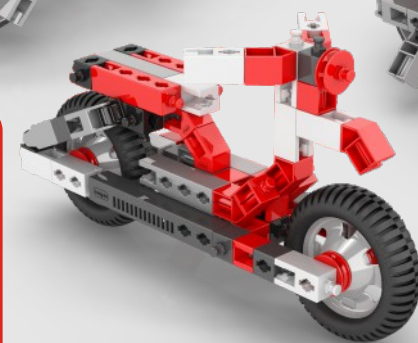


# bikes 12 models

6-12+

3 models

9 models



Dimensions:  
23 x 31 x 5.5 cm

Product code:  
1232



# aircrafts 12 models

6-12+

3 models

9 models

# industrial 12 models

6-12+

3 models

9 models



Dimensions:  
23 x 31 x 5.5 cm

Product code:  
1233

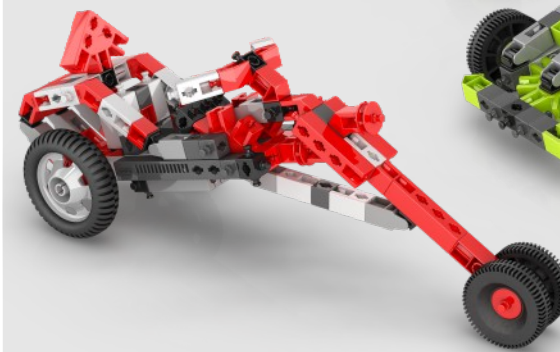


Dimensions:  
23 x 31 x 5.5 cm

Product code:  
1234

Dimensions:  
27 x 37 x 5.5 cm

Product code:  
1631



Dimensions:  
27 x 37 x 5.5 cm

Product code:  
1632

# cars 16 models

6-12+

3 models

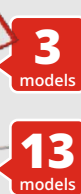
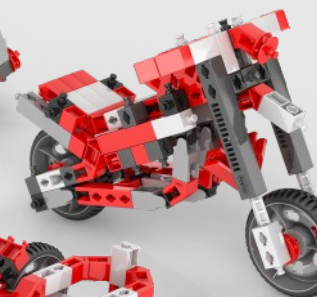
13 models

# bikes 16 models

6-12+

3 models

13 models





# aircrafts 16 models

6-12+

3 models

13 models

# industrial 16 models

6-12+

3 models

13 models



Dimensions:  
27 x 37 x 5.5 cm

Product code:  
1633



Dimensions:  
27 x 37 x 5.5 cm

Product code:  
1634

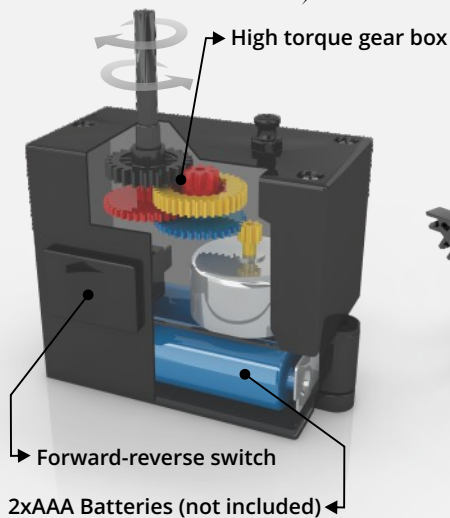
30 Models Motorized Set

30 Models Motorized Set

50 Models Motorized Set

90 Models Motorized Set

120 Models Motorized Set



# INVENTOR<sup>®</sup> MOTORIZED

The multi-model capability of **ENGINO<sup>®</sup> TOY SYSTEM** increases geometrically as the number of parts contained in the sets also increases. The inventor motorized series is the ultimate range and it is more suitable for intermediate and advanced users who literally “play to invent”! The models created with these sets are bigger and more elaborate and also incorporate technical features. Models are brought to life once animated with the high torque geared motor included! Motor is also connectable to the ENGINO<sup>®</sup> solar panel, found in other sets. The series starts with the 30 in 1 models set and goes all the way up to the 120 in 1 models set! Each set contains printed instructions for 4 selected models while the rest can be downloaded for free from [www.engino.com](http://www.engino.com) and from the smart phones and tablets app.





# 30 models motorized set

6-12+

4 models

26 models



Dimensions:  
28 x 41 x 5.9 cm

Product code:  
3030

# 30 models motorized set

6-12+

4 models

26 models



Dimensions:  
28 x 41 x 5.9 cm

Product code:  
3031



# 50 models motorized set

6-12+

4 models

46 models



Dimensions:  
29 x 46 x 5.9 cm

Product code:  
5030



# 90 models motorized set

6-12+

4 models

86 models




Dimensions:  
33 x 49 x 6.9 cm

Product code:  
9030



# 120 models motorized set

 6-12+

**4**  
models

**116**  
models



Dimensions:  
37 x 49 x 6.9 cm

Product code:  
12030

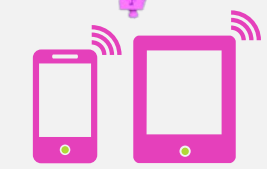
Getting children, especially girls, interested in construction building and engineering can be quite a difficult task. The brand new INVENTOR GIRL series tackles this problem by linking imaginative play with 3D model creation. The vivid colours of lilac, fuchsia, light green and sky blue will surely intrigue our little friends and urge them to explore their creative side. The series ranges from 5 models set to 30 models set. Each set contains printed instructions for selected 4 models, while the rest can be downloaded for free from [www.engino.com](http://www.engino.com)



**build.  
play.  
learn.**



- 5 Models Set
- 10 Models Set
- 15 Models Set
- 20 Models Set
- 30 Models Set with Motor



3D interactive instructions  
to download on your smart device

**Engino kidCAD**





# inventor girl 5 models

6-12+

4 models

1 model



Dimensions:  
16 x 22 x 5.5 cm  
Product code:  
IG05

# inventor girl 10 models

6-12+

4 models

6 model



Dimensions:  
19.5 x 26 x 5.5 cm  
Product code:  
IG10

Dimensions:  
23 x 31 x 5.5 cm  
Product code:  
IG15



# inventor girl 15 models

6-12+

4 models

11 model

# inventor girl 20 models

6-12+

4 models

16 model



Dimensions:  
27 x 37 x 5.5 cm  
Product code:  
IG20



# inventor girl 30 models

6-12+

4  
models

26  
models



Dimensions:  
29 x 46 x 5.9 cm

Product code:  
IG30



ENGINO® has secured the license to produce famous models of JCB construction machines. The JCB series consists of four different pack options, each one containing instructions for three different JCB models. Children can build iconic JCB machines such as the 3CX Backhoe Loader, the Telescopic Handler and the Skid Steer Loader. The larger sets also include a motor which bring the JCB models to life.



**JCB**  
machinery series

**3 IN 1**  
MODELS

- Tipper Truck
- Wheeled Loader
- Backhoe Loader
- Tall Crane Motorized



# tipper truck



Dimensions:  
23 x 31 x 5.5 cm

Product code:  
JCB10

# wheeled loader



Dimensions:  
27 x 37 x 5.5 cm

Product code:  
JCB20

# backhoe loader



Dimensions:  
28 x 41 x 5.9 cm

Product code:  
JCB30

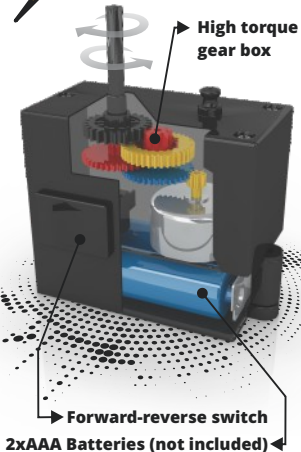




# tall crane motorized



**+ power MOTOR**



Dimensions:  
33 x 49 x 6.9 cm

Product code:  
JCB40



- Scorpion / Alligator
- Astrophysics Jupiter / Saturn
- Dragster / Racer
- Automotives
- Motorcycles
- Aeronautics
- Safari Park
- Dragons Evolution
- Space Exploration
- Jurassic Earth - Motorized Models
- Sea Exploration
- Greenhouse

After the success of Discovering STEM range and the emerging need for a more child-friendly presentation of theory and experiments, ENGINO® has developed the new **STEM HEROES** series. The series introduces to children the world of STEM disciplines through a completely new and playful approach, with captivating chapters and technologies! The sets include a booklet which presents not only the step by step instructions but also a colorful presentation of theory and interesting facts. The sets cover a variety of scientific themes such as Aviation, Space and Sea Exploration, Dinosaurs, Greenhouse and even Dragon's Evolution! Like all ENGINO® sets, the models of the STEM HEROES are available as three-dimensional virtual objects! Children can now digitally view each model by downloading the free KidCAD app for smart devices. They can play while also practicing Computer Aided Design skills (CAD), by zooming in and out each model, rotating them in 3D space and even exploding to see how components connect to each other.



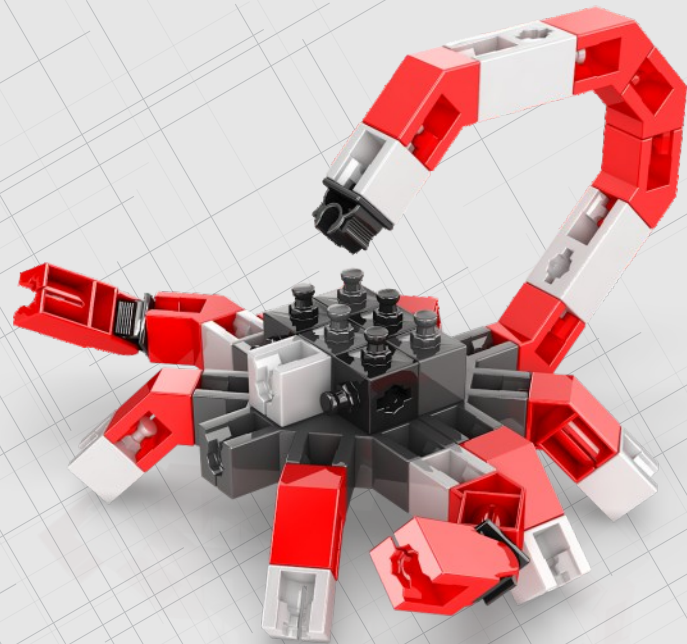


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14 x 19 x 4.5 cm

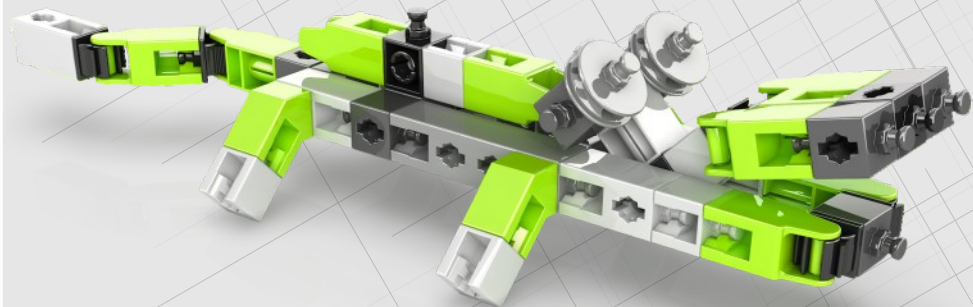
Product code:  
STH11



# scorpion



# alligator



Dimensions:  
14 x 19 x 4.5 cm

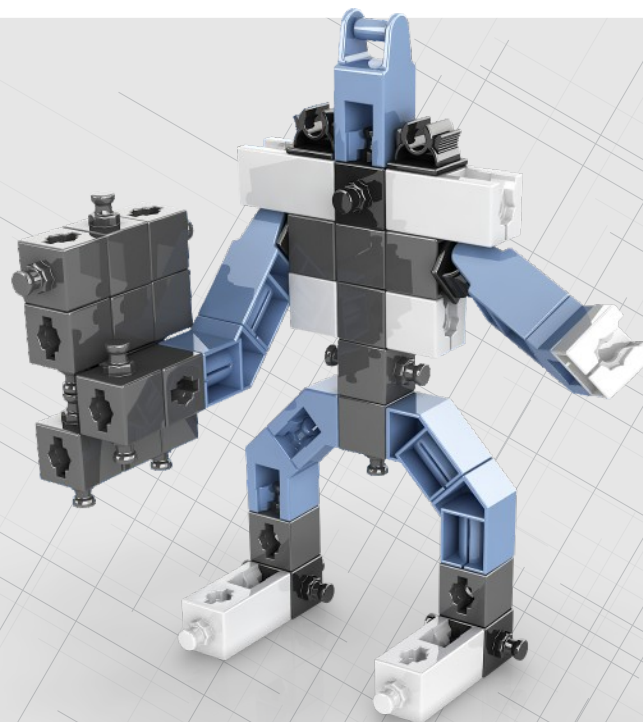
Product code:  
STH12

Dimensions:  
14 x 19 x 4.5 cm

Product code:  
STH13



# astrophysics jupiter

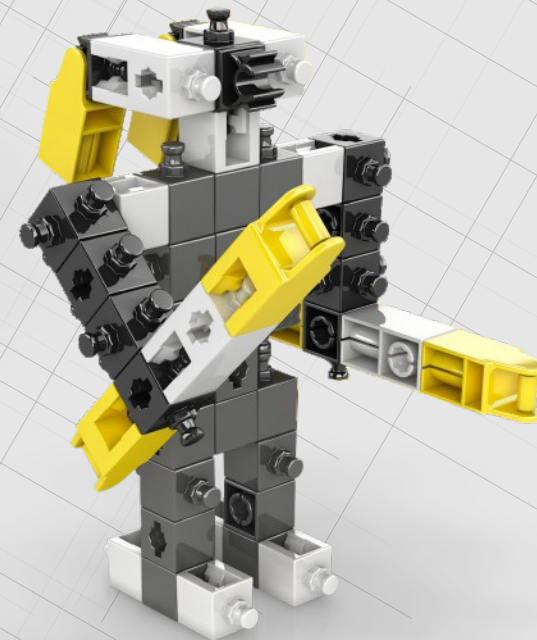


# astrophysics saturn



Ddimensions:  
14 x 19 x 4.5 cm

Product code:  
STH14



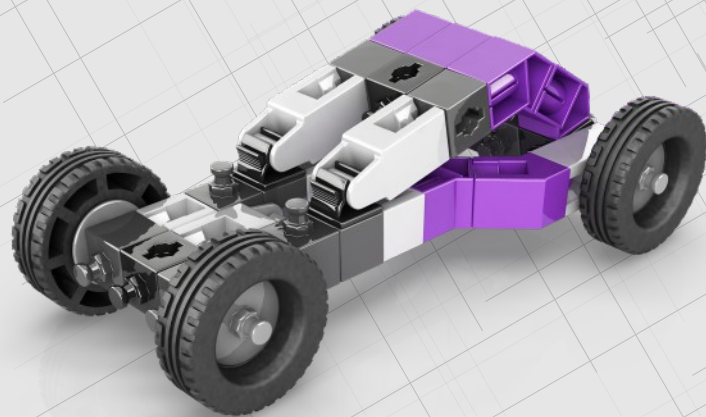
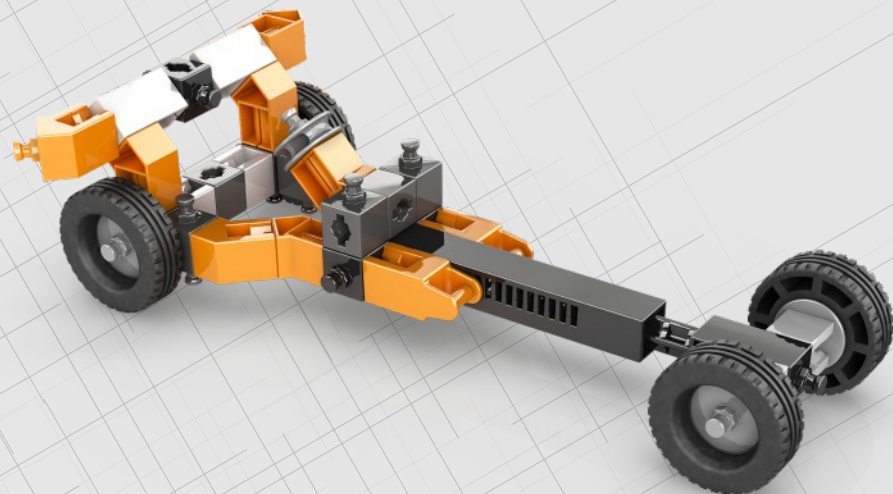


Dimensions:  
14 x 19 x 4.5 cm

Product code:  
STH15



# dragster



# racer

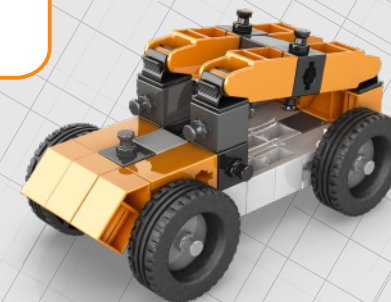


Dimensions:  
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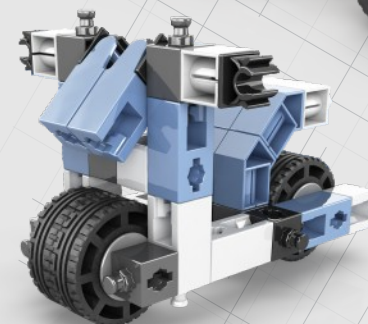
Product code:  
STH16

Dimensions:  
16 x 22 x 5.5 cm

Product code:  
STH21



# automotives

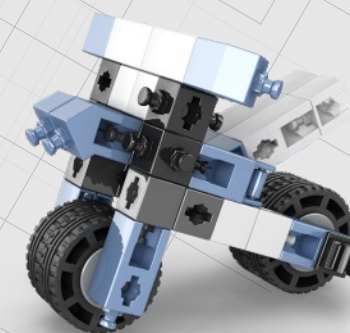


# motorcycles



Dimensions:  
16 x 22 x 5.5 cm

Product code:  
STH22





# aeronautics



Dimensions:  
19.5 x 26 x 5.5 cm

Product code:  
STH31

# safari



Dimensions:  
19.5 x 26 x 5.5 cm

Product code:  
STH32

# dragons evolution



Dimensions:  
23 x 31 x 5.5 cm

Product code:  
STH41



# space exploration



Dimensions:  
27 x 37 x 5.5 cm

Product code:  
STH51

# jurassic earth motorized



Dimensions:  
28 x 41 x 5.9 cm

Product code:  
STH61



# sea exploration



Dimensions:  
33 x 49 x 6.9 cm

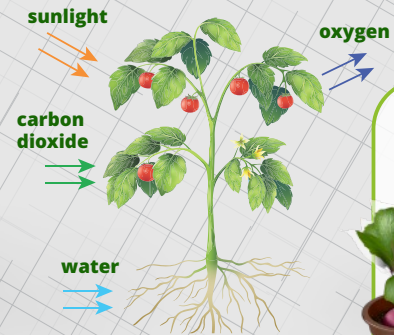
Product code:  
STH71

# greenhouse



Dimensions:  
37 x 49 x 6.9 cm

Product code:  
STH81



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

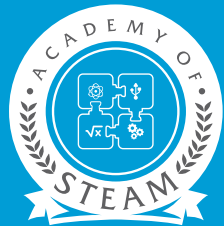


**10ml plastic syringe** to water the  
plants with precision.



**seeds and soil not included**





# ACADEMY OF STEAM

## junior

This new range titled "ACADEMY OF STEAM 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 cover 4 different topics and come with a colorful booklet that starts with an engaging story. Preschoolers, with the help of an adult, can learn interesting facts about each featured topic, while also building their model following the step-by-step instructions. More activities come next, such as coloring pictures, connecting dots tracing numbers or letters of the alphabet. Additional activities are included that help kids learn about shapes, colors and maths!



### Learning about...

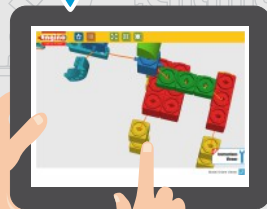
wild animals

aircrafts

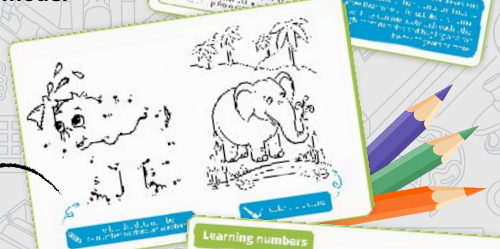
sea adventures

vehicles

Free app  
to view 3D models

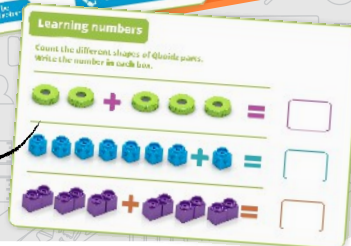


Building and learning of model



Coloring activities

Learning the numbers

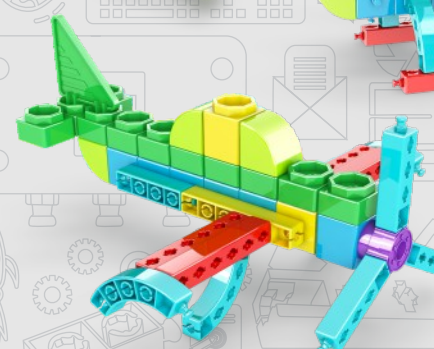
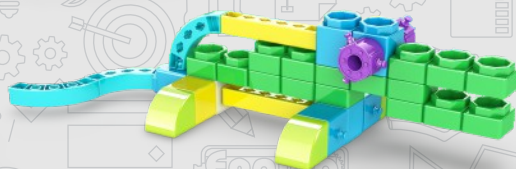
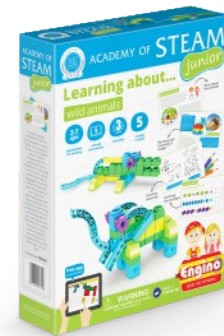


Story



Dimensions:  
23 x 29 x 6.5 cm

Product code:  
STEAMQB11



Dimensions:  
23 x 29 x 6.5 cm

Product code:  
STEAMQB12



## wild animals

3-7  
ages

appropriate  
for building

5  
models  
to build

3  
years

warranty

## aircrafts

3-7  
ages

appropriate  
for building

5  
models  
to build

3  
years

warranty

page 58

page 57



# sea adventures

3-7  
ages

appropriate  
for building

5  
models  
to build

3  
years  
warranty

# vehicles

3-7  
ages

appropriate  
for building

5  
models  
to build

3  
years  
warranty



Dimensions:  
23 x 29 x 6.5 cm

Product code:  
STEAMQB13



Dimensions:  
23 x 29 x 6.5 cm

Product code:  
STEAMQB14



# ACADEMY OF STEAM

Solar Plane

Solar Helicopter

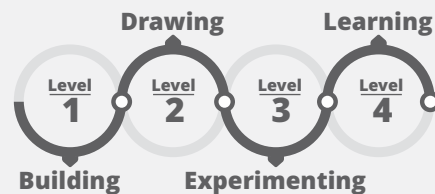
Botanic Lab

Hydraulics Science

Buoyant Forces

Inertia & Energy Conversion

Multi-level Learning System™



Elaborate theory &  
experiment's book

Secure pins for panels:  
easy to remove with the included  
extraction tool!



Solar panel propeller  
with build-in motor

Special surface  
panels to draw  
& colour



The “Academy of STEAM” series has been developed in order to cope with the new trend in education science that incorporates “Arts” within the STEM curriculum. Even though art is an inherent part of 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.

The sets of this series are based on the new 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 from scratch your own theme.

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

**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

Carry out the experiment and write down your observations!

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

Take the quiz to test what you have learnt about the subject!

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

LEVEL 4 Learning

Experimenting

LEVEL 3

LEVEL 2 Drawing

Building

LEVEL 1

Multi-level Learning System™

1B Add plastic surfaces and make it appear as in real life!

1A Use the instructions to build your model!

SHARE skins online:  
[www.engino.com/steamxf/11](http://www.engino.com/steamxf/11)

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

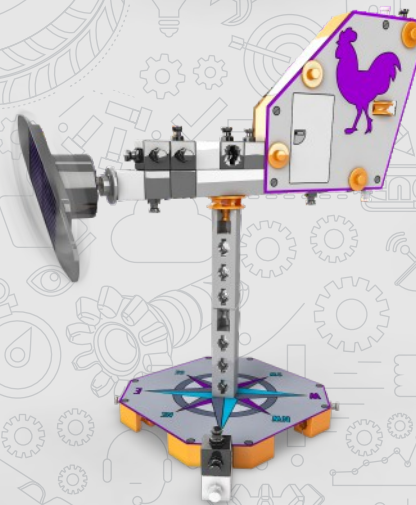
2A Replace the plastic skin and colour your own!

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

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

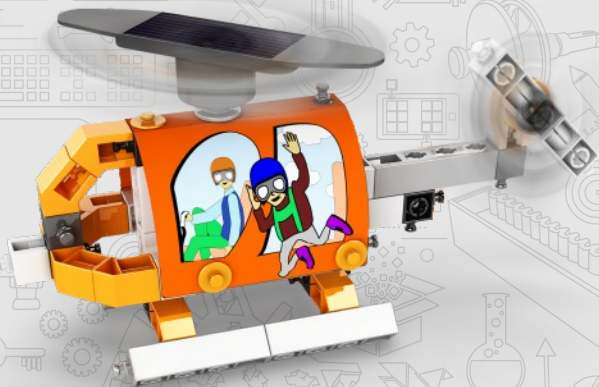
Dimensions:  
23 x 29 x 6.5 cm

Product code:  
STEAMXF11



Dimensions:  
23 x 29 x 6.5 cm

Product code:  
STEAMXF12



# solar plane

8-12+

2 models to build

3 years warranty

# solar helicopter

8-12+

2 models to build

3 years warranty



# botanic lab



8-12+

1

models to build

3

years warranty



Dimensions:  
23 x 29 x 6.5 cm

Product code:  
STEAMXF13

# hydraulics science



8-12+

4

models to build

3

years warranty



Dimensions:  
23 x 29 x 6.5 cm

Product code:  
STEAMXF14

Dimensions:  
23 x 29 x 6.5 cm

Product code:  
STEAMXF15



Dimensions:  
23 x 29 x 6.5 cm

Product code:  
STEAMXF16

# buoyant forces



8-12+

4

models to build

3

years warranty



# inertia & energy conversion



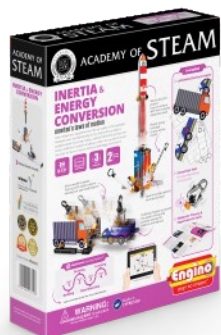
8-12+

2

models to build

3

years warranty





# DISCOVERING<sup>TM</sup> 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**
- **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 ARCHITECTURE SET:**
  - Eiffel Tower and Sydney bridge
- **STEM AMUSEMENT PARK:**
  - London Eye & Merry-Go-Round
- **STEM ROBOTICS ERP MINI**





# 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

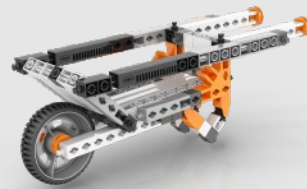
pages of step by step instructions!



8-16+

Dimensions:  
27 x 37 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!



8-16+

Dimensions:  
27 x 37 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!



8-16+

Dimensions:  
27 x 37 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 it's 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 to 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!



8-16+

Dimensions:  
27 x 37 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!



8-16+

Dimensions:  
27 x 37 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!



8-16+

Dimensions:  
27 x 37 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!



## 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 revolves the fan blades faster and faster.

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



## build a balloon-powered plane

There are many ways to store energy, one is with a balloon. Build this model and see the plane starts flying around the base when the balloon is allowed to release it's air. Change the balloon's position and learn about Moments and centrifugal force.

- What centrifugal and centripetal forces are.
- How balloon energy converts to kinetic.



## 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.



8-16+

Dimensions:  
27 x 37 x 5.5 cm

Product code:  
STEM07

## 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!



12

pages of theory and amazing facts!

3

pages of revision quiz!

3

pages of experimental activities!

12

pages of step by step instructions!



8-16+

Dimensions:  
29 x 46 x 5.9 cm

Product code:  
STEM30



# 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 hand's-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

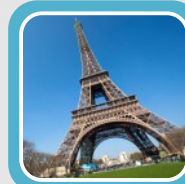
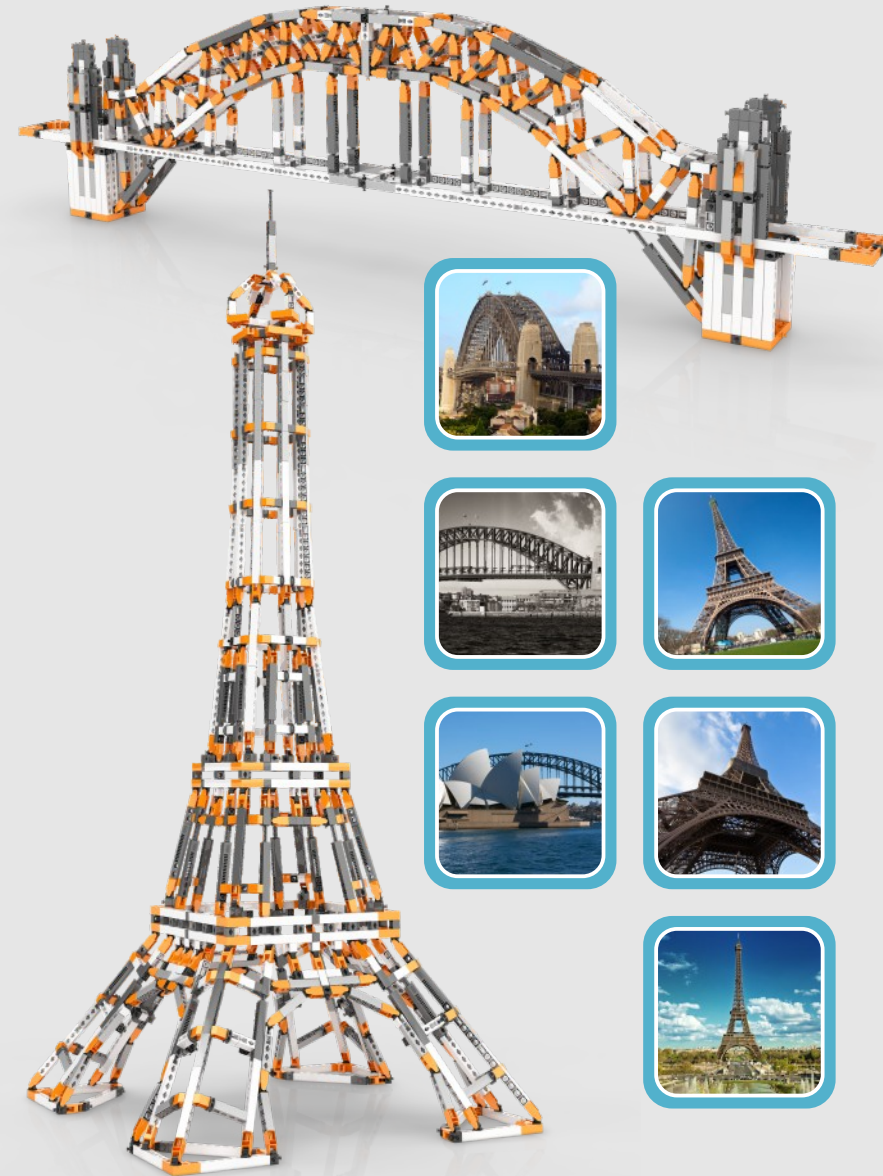
pages of revision quiz!

4

pages of experimental activities!

44

pages of step by step instructions!



8-16+

Dimensions:  
37 x 49 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!



8-16+

Dimensions:  
37 x 49 x 16 cm

Product code:  
STEM56





# ROBOTICS MINI ERP 2.0

DEVELOPED FOR TEACHING ROBOTICS PROGRAMMING AT PRIMARY AND SECONDARY EDUCATION



**KEIRO**  
software



models to build



BUILD & PROGRAM  
YOUR OWN ROBOT

## 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:



Dimensions:  
37 x 49 x 8 cm

Product Code:  
STEM60

Connect up to 2 motors to  
drive models independently

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

8-16+



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