



Engino.net Ltd
 P.O.Box 71040
 3840 Limassol, Cyprus
 European Union
 Tel.: +357 25821960
 Fax: +357 25821961
 Email: info@engino.com
 Website: www.engino.com

© 2012 Engino.Net Ltd. All Rights Reserved.



play to invent™



- inventor basic
- inventor pro
- mega structures
- solar power
- classroom solutions

contents



- | | |
|-----------------------------------|--------------------------------------|
| 02. About Engine | 24. London Eye |
| 03. The System | 25. Solar Power series |
| 05. Engine Functions | 26. Solar Machines |
| 06. Inventor Basic series | 27. Solar Cars |
| 07. 3 & 5 models set | 28. Solar Pro Duo |
| 08. 8 & 10 models set | 29. Solar Add-On |
| 09. 12 models set | 31. Mechanical Science series |
| 10. 15 models set | 33. Levers set |
| 11. 18 models set | 34. Linkages set |
| 12. 20 models set | 35. Wheels & Axles set |
| 13. 25 models set | 36. Inclined planes & Wedges set |
| 14. 30 models set | 37. Pulleys set |
| 15. Inventor Pro series | 38. Cams & Cranks set |
| 17. 40 models set | 39. Gears set |
| 18. 60 models set | 40. Screws set |
| 19. 80 models set | 41. Structures & Bridges |
| 20. 100 models set | 42. Simple Machines |
| 21. Mega Structures series | 43. Master Set Design & Technology |
| 22. Eiffel Tower | 45. Engino Master Technology CD |
| 23. Ferris Wheel | 46. Wood Adaptors |

Products subject to change without notice. Dimensions and weights by approximation.

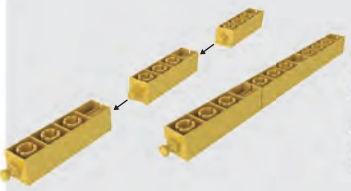
about

Engineering is the art of rearranging the materials and forces of nature. ENGINO® brand name uses the same initials, honoring this fundamental and innate human characteristic which empowers us to perform astonishing technological feats. Our children are gifted with this power and through creative play they learn how to exploit it.

ENGINO® TOY SYSTEM was invented by Costas Sisamos, a former teacher and engineer, for the purpose of helping pupils build technological models creatively and easily so that they can experiment and learn about science and technology in a playfull way. Research grants from local and E.U. funds helped materialize the 3 year research to an innovative product, launched internationally in 2007. Since then, the company developed more snap-fit components such as gears, pulleys motors and solar panels, and also a series of activity books and software that help children interact with technology and learn by playing. The major advantage of ENGINO® system is that it enables children to build fast and easy simple or complex models using a very small number of different components.

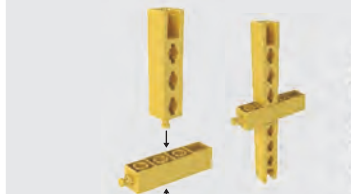


some brand awards



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.

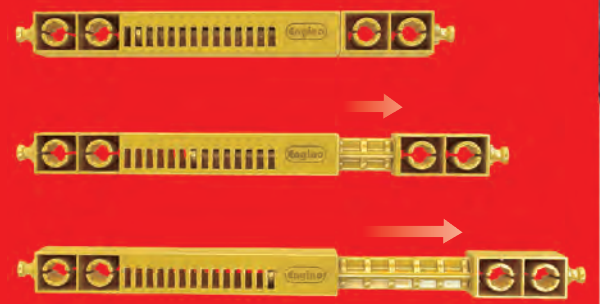
Snap Fit System



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:

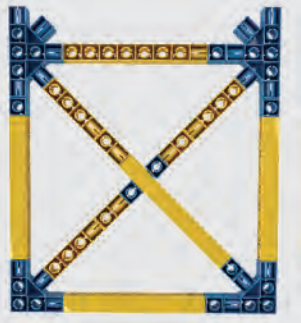


system



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.

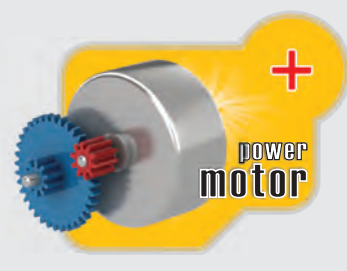




Selected ENGINO® sets contain high precision gears and axles for creating models with more complex motion



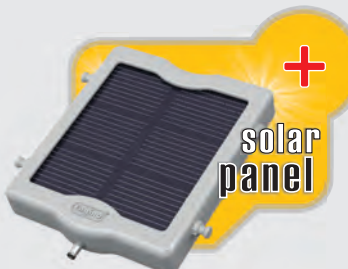
Most sets of the range now include the new ENGINO® extraction tool, designed as a tweezer wedge, enabling younger children to disassemble easily small parts.



There are two types of ENGINO® motors, a 3V geared motor with the battery compartment incorporated in the same housing, and a more compact 4.5V motor that can be powered with a wired remote control (RC).



Some sets contain pulleys with a belt drive so that speed can be increased or decreased, or transferred from one position to another.



The ENGINO® 3V solar panel has been designed to connect to the dual output 4.5V motor directly or via the wired RC handset.



Because ENGINO® system is so versatile, each set can build a great number of models. To protect the environment not all instructions are printed. The instructions for the secondary models can be downloaded for free from www.Engino.com

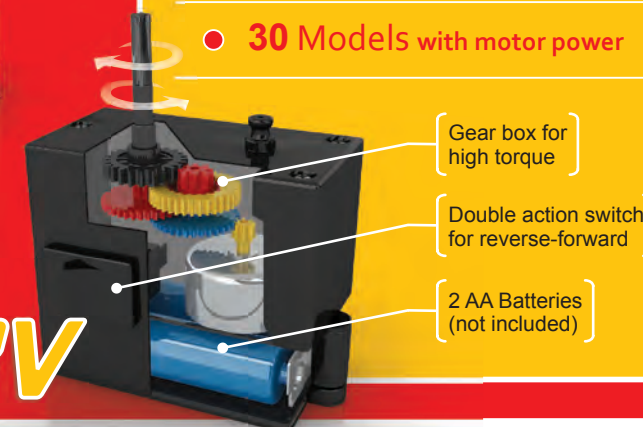


Each set contains a booklet with printed step by step instructions on how to build a selected number of the most impressive models.



inVentor basic™

The inventor basic series has been developed for maximizing creativity and imagination. In each set many different models can be created from a wide range of themes, from structures to cars, planes and cranes! The bigger sets also include the 3V geared motor, allowing children to motorize many of their models. Detailed instructions are included for the major models while secondary models can be assembled by following the free to download internet instructions. All sets can be combined together to create bigger builds, limited only by the child's imagination.



- 3 Models
- 5 Models
- 8 Models
- 10 Models
- 12 Models
- 15 Models
- 18 Models with motor power
- 20 Models with motor power
- 25 Models with motor power
- 30 Models with motor power

Gear box for high torque

Double action switch for reverse-forward

2 AA Batteries (not included)

3V

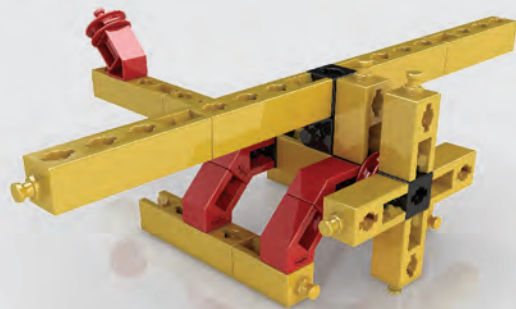
3 models

5+



3 models

Product code: 0320



Dimensions:
14 x 14 x 4.5 cm
Weight:
140 gr
Parts:
32
Connecting Points:
150

8 models

5+



2 models

Product code: 0820



Dimensions:
18 x 27 x 4.5 cm
Weight:
350 gr
Parts:
90
Connecting Points:
434

5 models



5+

5 models

Product code: 0520



Dimensions:
16 x 22 x 4.5 cm
Weight:
220 gr
Parts:
51
Connecting Points:
215



10 models



5+

4 models

6 models

Product code: 1020



Dimensions:
20 x 28 x 5 cm
Weight:
420 gr
Parts:
89
Connecting Points:
420



12 models

5+



6

models



6

models



Product code: 1220



Dimensions:
21 x 28 x 5 cm

Weight:
430 gr

Parts:
81

Connecting Points:
382

15 models



5+

9

models

6

models



Product code: 1520



Dimensions:
22 x 28 x 6 cm

Weight:
450 gr

Parts:
84

Connecting Points:
385

18 models



6+



6

models

12

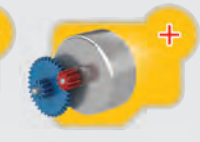
models

Product code: 1820



Dimensions:
22 x 34 x 6 cm
Weight:
560 gr
Parts:
104
Connecting Points:
485

20 models



6+

14

models

6

models

Product code: 2020



Dimensions:
22 x 36 x 6 cm
Weight:
580 gr
Parts:
110
Connecting Points:
498

25 models



6+



17 models

8 models

Product code: 2520



Dimensions:
24 x 42 x 6 cm
Weight:
650 gr
Parts:
110
Connecting Points:
475

30 models



6+

22 models

8 models

Product code: 3020



Dimensions:
27 x 49 x 6 cm
Weight:
600 gr
Parts:
920
Connecting Points:
938

inVentorTM pro

The multi-model capability of **ENGINO[®] TOY SYSTEM** is proportional to the number of parts contained in the sets. The inventor pro series is the ultimate range more suitable for intermediate and advanced users who literally "play to invent"! The models created with these sets are bigger and more elaborate and can move with the new compact dual output motor. The motor is powered from a wired remote control, specially designed to also work with solar power. The series starts with the 40 models set and goes all the way to the 100 models set which has 2 motors and extra gears for even more complex builds. Each set contains printed instructions for selected 10 models while the rest can be downloaded free from engino's website.



Switch 1:
Forward - Reverse

Switch 3:
Fast or Slow

Switch 2:
Solar Power or
Battery power
operation



Gear box for reducing motor speed and increasing torque.

Dual output shaft from both sides of the motor.



Motor casing designed with several engino plugs for easy assembly on models.

Socket for DC jack which can connect directly to the remote control handset or to the solar panel.



- 40 Models with motor power II
- 60 Models with motor power II
- 80 Models with motor power II
- 100 Models with X2 motor power II

40 models



7+



30 models

10 models

Product code: 4020



Dimensions:
30 x 49 x 7 cm

Weight:
1050 gr

Parts:
175

Connecting Points:
876

60 models



7+

50 models

10 models

Product code: 6020



Dimensions:
33 x 49 x 7 cm

Weight:
1400 gr

Parts:
238

Connecting Points:
1450

80 models



7+



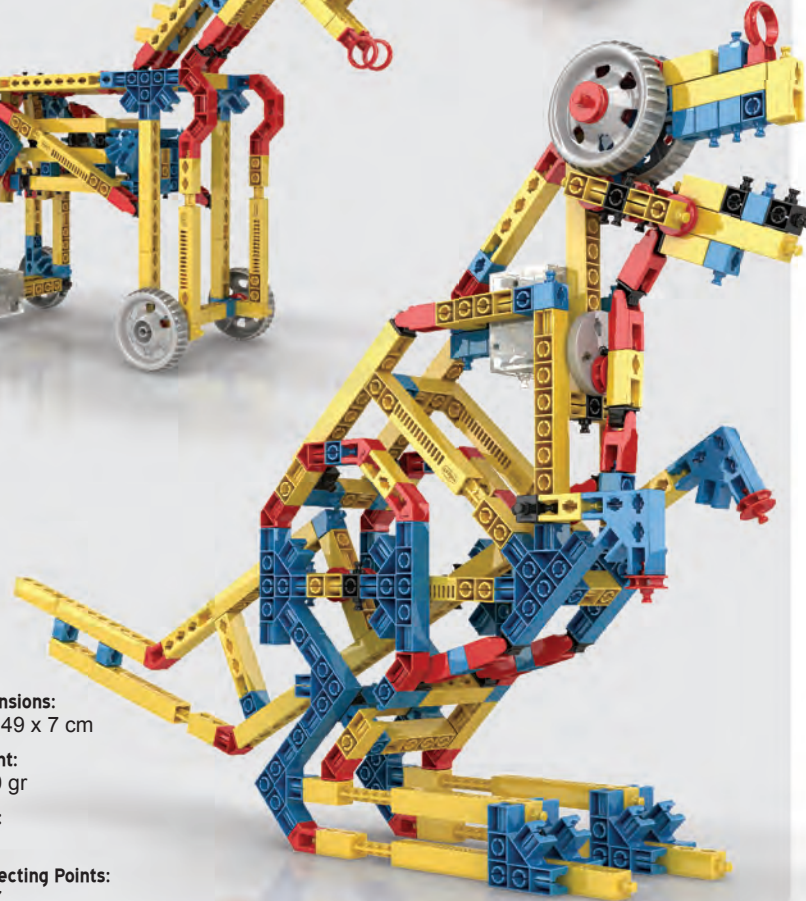
70 models



10 models



Product code: 8020



Dimensions:
36 x 49 x 7 cm

Weight:
1550 gr

Parts:
277

Connecting Points:
1557

100 models



8+



90 models



10 models



Product code: 10020



Dimensions:
39 x 49 x 7 cm

Weight:
1720 gr

Parts:
498

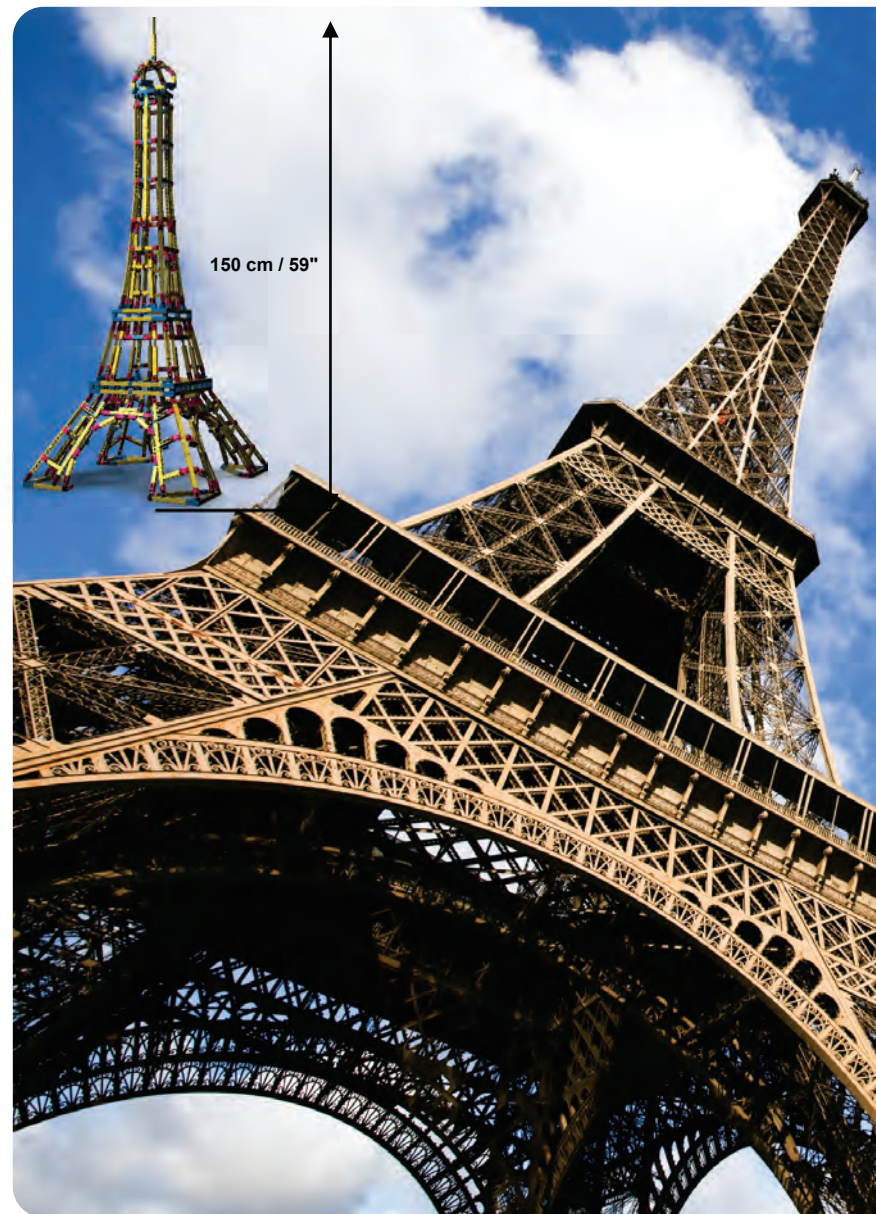
Connecting Points:
1930

mega structures™

ENGINO® TOY SYSTEM is very unique in its ability to create complex builds even by using a small number of different parts. The versatile design of the components allows connectivity in all directions of the 3D space, while the patented extendable rods enable triangulations at any angle. The MEGA STRUCTURES series demonstrates this ability of engino to build huge models of impressive size and style. The series covers famous structures such as the Eiffel Tower and technological marvels such as the London Eye.



- Eiffel Tower
- Ferris Wheel
- London Eye



eiffel tower

The Eiffel Tower is a metal structure built in 1889 in Paris, France. It was designed by Gustave Eiffel who also designed the armature of the Statue of Liberty in New York. The tower stands 324 meters tall and was for 41 years the tallest building of the world until surpassed by the Chrysler building. The engino® model, stands at 1.5 meters tall and it is based on the same structural principles that keep the amazing metal structure standing for more than a century.

models appropriate for ages **9+** models to build **1**

Product code: **MS1**



Dimensions: 55 x 45 x 10cm
Weight: 3500 gr
Parts: 1354
Connecting Points: 4590

ferris wheel

"Pleasure wheels" whose passengers ride in chairs turned by strong men seem to have been around already from the 17th century! The original Ferris wheel was designed and constructed in 1893 by G.W. Gale Ferris, Jr. in Chicago, and since then all such structures carry his name. The original Ferris wheel was 80.4 meters tall and the tallest one today is the Singapore flyer which reaches 165 meters. The engino® motorized wheel is 60 cm tall and has many similarities with original Ferris wheels.

models appropriate for ages **9+** models to build **1**

Product code: **MS2**

Dimensions:
50 x 40 x 10cm
Weight:
2900 gr
Parts:
890
Connecting Points:
3150



london eye

The London Eye is a giant 135 meters tall Ferris wheel and it is the tallest one in Europe. It is situated on the banks of the river Thames in the British capital. One of its most distinctive features is its triangular rim and its capsules, each of which can hold up to 25 passengers. The engino® motorized model is designed with the same style of triangular rim and stands at 100 cm tall.

models appropriate for ages **9+** models to build **1**

Product code: **MS3**

Dimensions:
65 x 44 x 10cm
Weight:
4500 gr
Parts:
1718
Connecting Points:
5970



Global warming and Climate change has brought to our attention the need to save the planet by reducing Carbon emissions, the gasses released from the burning of fossil fuels and petrol. Our sun can provide free energy for all our needs, however, we need to convert it to a useful form. One of the most modern technologies to harness solar power is the use of photovoltaic cells, especially when solar energy needs to be converted to electricity. The new engino® solar power sets use photovoltaic panels to drive the various models and also have hybrid functions, in-line with the latest technological trends.



Solar Machines

Solar Cars

Solar Pro Duo

Solar Add-on

Solar panels are equipped with a DC jack and socket for triple action: (1) connect with 30cm wire to motor, (2) connect to the RC handset and power models from distance, and (3) connect many panels in parallel increasing SOLAR power!

Remote control handset connected to a 150 cm wire, hybrid function enabled! It includes a socket to connect directly to engino Solar panels and power the motor or it can work with 3xAAA batteries. Includes 3 switches for complex function: (1) Forward - Reverse, (2) Solar Power or Battery power operation, (3) Fast or Slow.



solar machines

Solar energy accounts for most of the available renewable energy on earth and has been harnessed by humans since ancient times. In our modern times we mostly need electrical energy, and photovoltaic cells are used to convert Solar energy to electric. This set includes a 3V solar panel with the R/C handset which drives a variety of models demonstrating the many different applications of Solar power. The set includes a 20-page booklet with building instructions for 8 models.

building instructions booklet

20 pages

models appropriate for ages

8+

models to build

8

Product code: S10

Dimensions:
30 x 49 x 7 cm

Weight:
1000 gr

Parts:
290

Connecting Points:
765



solar cars



Since scientists realized that our modern lifestyle is the major cause of global warming, they started to seek ways to substitute fuels with more clean energy sources, such as Solar energy. One application which will soon become a reality is that of solar cars. Young inventors can now experiment with this technology using this hybrid engine set. Engino models can run either with solar energy or with battery power! This set also includes a wired RC handset and a 20-page booklet with building instructions for 8 models.

building instructions booklet **20** pages
 models appropriate for ages **8+**
 models to build **8**

Product code: **S20**



Dimensions:
33 x 49 x 7 cm
 Weight:
1100 gr
 Parts:
282
 Connecting Points:
711



solar pro duo



The solar pro duo set is the ultimate solar set, including 2 solar panels of 3V each, which may be connected in series for increased power. The panels can be connected directly to the motor or they can connect to the RC handset, powering up the models effectively even from a distance! The greatest advantage of this set-up is the ability to drive models regardless of their position relative to the Sun. The set includes all models from the smaller sets of Solar machines and Solar cars and four more models for advanced building. Printed instructions for all 20 models are included.

building instructions booklet **48** pages
 models appropriate for ages **8+**
 models to build **20**

Product code: **S30**



Dimensions:
39 x 49 x 7 cm
 Weight:
1350 gr
 Parts:
307
 Connecting Points:
811



solar panel add-on

The 3V solar panels of engino® are designed to be interconnectable without limitations to the number of panels used, meaning that even big models can be powered with solar energy. This solar panel add-on can be added to the solar power sets in order to increase the area of the photovoltaic panels. It is also a low cost solution for users that already have other engino sets and wish to experiment with solar energy and also save on battery power. The panel can be connected to all the sets of the inventor pro series which already use the compact dual output motor and wired RC handset. No instructions are needed as the major models of the sets are motorized and the panel can connect to the handset powering up the models remotely.

models appropriate for ages

8+

Product code: S40



Dimensions:
16 x 19.7 x 4.5 cm
Weight:
170 gr



Classroom Solutions
for Science
& Technology



mechanical science™

Engino® Education has developed this series of Mechanical Science for schools and individuals who want to combine theory with practice. The series deals with the core subjects of Mechanics and Simple machines in a fascinating and enjoyable way, leading children to the attainment of knowledge through experiments and hand's on activities. The series also extends to cover other important science subjects such as Structures & bridges, Newton's laws and renewable energy.



All patented engino parts are designed to snap fit together in various combinations. The rugged plastic material assures that parts will be used again and again. All engino sets contain the same library of parts meaning that they can be easily combined together.

The activity books of the Mechanical science series have been created by a team of technology teachers so that they follow the most up-to-date Design and Technology curriculum and STEM methodologies. These books include theoretical information about the different machines, with many full color images, drawings and interesting facts. Various experiments and activities are presented and the child can actually write in the book, completing tables and noting results and conclusions. In addition there are building challenges and quizzes, together with their answers so that children can evaluate themselves after they have completed each book. The books are ideal for home schooling but also for primary and secondary schools.

All models have detailed, step by step instructions, printed in a full color booklet. The parts are color-coded and the images are realistic and simple, without the technical look, making the building instructions very easy to follow.



- Levers
- Linkages
- Wheels & Axles
- Inclined Planes & Wedges
- Pulleys
- Cams & Cranks
- Gears
- Screws & Worm Drivers
- Structures & Bridges
- Simple Machines
- Master Technology Set
- Master Technology DVD
- Wood Adaptors

levers

Learn how Levers are used to increase force and lift heavy objects and how the use of levers can change the direction of motion. Build 7 working models including a parking gate, a see-saw, 2 types of weighing scales and a wheelbarrow. A 36 page activity book is included with innovative experiments and detailed explanations of the different technological principles applied! A booklet with detailed building instructions is also included.

building instructions booklet	models appropriate for ages	models to build	hands-on activity book	activities appropriate for ages
16 pages	6+	7	36 pages	9+

Archimedes once said: "Give me a place to stand on, and I will move the Earth", explaining in this special way the principle of levers. How true is his saying? Levers are possibly the first tools used by man for moving large objects and have been used ever since in a variety of modern applications. Almost every simple or complex machine contains one! Enter this fascinating world of levers and explore the magic of Mechanical Science!

Product code: **MO1**

Dimensions:
27 x 20 x 7 cm

Weight:
650 gr

Parts:
96

Connecting Points:
392



build a wheelbarrow

Play with this wonderful model of a wheelbarrow and learn how it is used for carrying heavy loads, using the elements of levers: fulcrum, effort and load, discovering the properties of second-class levers.

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

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 is a first-class lever.

build a letter scale

Construct a unique model of a letter scale and learn how light 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 of weighing errors.

build a see-saw

This fascinating model of the see-saw will help you find out how levers actually work. Learn about the principle of torque equilibrium and how it is used for gaining mechanical advantage. Is it possible for a little child to lift a much heavier adult?

- How does each class of levers actually work.
- What are the principles of levers.

build an extendable arm

Play with this wonderful model of a mechanical extendable arm and see how you can pick up things from a distance. Convert this model to a pantograph and learn how you can copy an image and make it bigger or smaller than the original.

- How to produce a larger or smaller copy.
- What are the properties of different linkages.

build a parallel scale

This fascinating model will introduce you to the concept of linkages and help you understand how they work. Find out about parallel motion and its usage on different situations.

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

build a folding platform

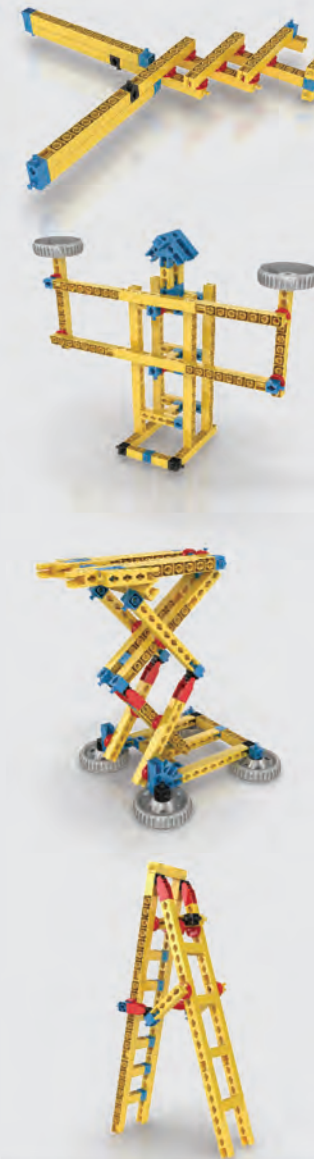
Construct a unique model of a folding platform and learn how several levers connected together create a linkage, allowing us to raise the platform very high. Experiment and discover how this model has a mechanical advantage.

- How levers connect to make a linkage.
- How mechanical advantage is gained.

build a folding ladder

Make a model of a folding ladder and see if you can find the best position to place the linkage so that it opens to the maximum height. Compare your model with a real folding ladder and learn what linkages are capable of.

- How to improve a model using linkages.
- What are linkages capable of.



linkages

Learn how by connecting many levers together you can create models with complex motion. Learn how such links can be applied on various machines and build 9 working models including a mechanical extendable arm, a lifting platform, a pantograph, a moving figures toy, a folding ladder and a parallel weighing scale. A 36 page activity book is included with innovative experiments and detailed explanations of the different technological principles applied! A booklet with detailed building instructions is also included.

building instructions booklet	models appropriate for ages	models to build	hands-on activity book	activities appropriate for ages
16 pages	6+	9	36 pages	9+

As simple as they may look, the capabilities of linkages were not exploited until the 19th century! During the time of Industrial Revolution, an amazing booming of mechanics took place and linkages were one of the most valuable parts of almost every machine. Their task: to connect together various components of machines and make new, complex machines, the characteristics of which are influencing our way of life, even today. Enter this fascinating world of linkages and explore the magic of Mechanical Science!

Product code: **MO2**

Dimensions:
27 x 20 x 7 cm

Weight:
650 gr

Parts:
96

Connecting Points:
392



wheels & axles

Learn how wheels use friction to move objects easily and how turning wheels can help move around corners. Also how big wheels compare to small wheels. Build 7 models including a tractor, a motorcycle, a door, a car with steering wheels and a car lift. A 36 page activity book is included with innovative experiments and detailed explanation of the different technological principles applied! A booklet with detailed building instructions is also included.

building instructions booklet	models appropriate for ages	models to build	hands-on activity book	activities appropriate for ages
16 pages	6+	7	36 pages	9+

When the Sumerians discovered the wheel about 4000 BC, many problems of ancient civilizations were solved. Adding just an axle meant that they could exploit the animals' muscle power and change it from linear motion to any direction they wished. Nowadays, we cannot even imagine how our modern life would be without this ingenious simple machine. Enter this fascinating world of wheels and axles and explore the magic of Mechanical Science.

Product code: **M03**

Dimensions:
27 x 20 x 7 cm

Weight:
700 gr

Parts:
132

Connecting Points:
446



build a field tractor

Play with this great 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 matters.



build a motorbike

This model of a motorbike will introduce you to the way that the simple machine of the wheel and axle works. Learn why a wheel on its own cannot be considered as a simple machine and how turning around corners becomes easy with the wheel.

- How does the wheel and axle work.
- Why do we need an axle.



build a car that turns

Construct this fascinating model of a car with reverse turning wheels and find out in what ways the axle and the wheel connect for different purposes. Learn how is the steering wheel used as a lever.

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



build a launching platform

Make this unique model of a launching platform and learn all about the mechanical advantage that this simple machine can offer. Experiment with different materials and discover how friction affects movement.

- What is the mechanical advantage.
- How does friction help.

build an airport staircase

Play with this wonderful model of an airport staircase and find out why it is easier to step up 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 reliefs us from effort.
- What is the mechanical advantage of a plane.

build a car with crane

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

- How do inclined planes work.
- What is inclination.

build a ramp with car

Make a great model of an automatic ramp with car and learn how it is used for moving a big weight up to a certain height. Compare your model with a real life one and find out what other simple machines are used.

- How to lift an object to a certain height.
- How simple machines work together.

build a splitting wedge

Construct a fascinating model of a splitting wedge and learn how the design of the wedge help us to cut through wood or other materials. Experiment and discover how the force of the wedge is greater than that of a similar object like the cheesel.

- How does a splitting wedge work.
- How to calculate the wedge's force.



inclined planes & wedges

Learn how an Inclined plane can be used to lift heavy objects and how a Wedge is used in every day applications. Build 6 models including a splitting wedge, an automatic ramp with a car, an airport staircase and a car with crane. A 36 page activity book is included with innovative experiments and detailed explanation of the different technological principles applied! A booklet with detailed building instructions is also included.

building instructions booklet	models appropriate for ages	models to build	hands-on activity book	activities appropriate for ages
12 pages	6+	6	36 pages	9+

An inclined plane is such a simple construction that many people do not even consider it a machine! But, actually the inclined plane is one of the six simple machines, along with the wedge, that have been around for ages and can be useful in a variety of ways. Many difficult tasks like lifting heavy loads or reaching a vertical height can be easily achieved just by using this ingenious device. Enter this fascinating world of inclined planes and explore the magic of Mechanical Science!

Product code: **M04**

Dimensions:
27 x 20 x 7 cm

Weight:
700 gr

Parts:
132

Connecting Points:
446



pulleys

Learn how pulleys can be used to transfer force with reduced friction and how to increase force or speed at amazing levels. Build 7 working models including a stationary bike, a construction crane, a crane bridge, a moving bridge, a material lift, a windmill and a blender. A 36 page activity book is included with innovative experiments and detailed explanations of the different technological principles applied! A booklet with detailed building instructions is also included.

building instructions booklet	models appropriate for ages	models to build	hands-on activity book	activities appropriate for ages
20 pages	6+	7	36 pages	9+

The pulley belongs in the category of simple machines. It was invented right after the discovery of the wheel and solved many problems. Pulleys have been used for thousands of years and are essential parts of complex machines in modern times. A pulley may simply look like a strap on a wheel, but that simplicity is the beauty of it! Enter the fascinating world of pulleys and explore the magic of Mechanical Science!

Product code: **M05**

Dimensions:
27 x 20 x 7 cm

Weight:
600 gr

Parts:
104

Connecting Points:
395



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 applied force.

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

build a crane bridge

Construct a unique 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 fascinating 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

Make a model of a high speed windmill and learn how pulleys can be used not only to transfer force but also change the speed. Experiment and discover how linear motion is turned into rotary motion with the help of a belt drive.

- What a belt drive is and how it is used.
- How to turn linear motion into rotary.

build a pumpjack

Make a wonderful model of a pumpjack 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 is input and output force.

build a flying eagle

This fascinating model of a flying eagle will introduce you to the concept of cams and cranks. Turn the crank and discover how the eagle flaps its wings, producing an amazing motion.

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

build a fishing crane

Construct a unique finishing 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

Play with this impressive 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 these can be used to convert reciprocal to linear motion. Build 5 models including a fishing crane, a pumpjack, a flying eagle, a sewing machine and a moving figure. A 36 page activity book is included with innovative experiments and detailed explanations of the different technological principles applied! A booklet with detailed building instructions is also included.

building instructions booklet	models appropriate for ages	models to build	hands-on activity book	activities appropriate for ages
16 pages	6+	5	36 pages	9+

Cams and cranks may not be included in the category of simple machines, but they surely play a very important role on how these machines work. The task of setting a machine into motion and change the direction of force is made possible with the use of these simple in design parts. Enter the fascinating world of cams and cranks and explore the magic of Mechanical Science!

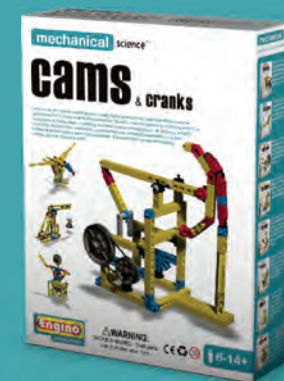
Product code: **M06**

Dimensions:
27 x 20 x 7 cm

Weight:
600 gr

Parts:
104

Connecting Points:
395



gears

Learn how gears can easily reduce or increase speed, change Force, or transfer motion from one position to another. Build 8 working models, including an experimental crane, a gearbox, a carousel, a hand drill, a helicopter, a hand blender, a rotating sign post and a high speed fan. A 36 page activity book is included with innovative experiments and detailed explanations of the different technological principles applied! A booklet with detailed building instructions is also included.

building instructions booklet	models appropriate for ages	models to build	hands-on activity book	activities appropriate for ages
20 pages	6+	8	36 pages	9+

We have records and even actual devices made by ancient civilizations that used gears in order to work! These devices were able to calculate the movement of planets and stars with great accuracy. Nowadays, gears can be found in a variety of machines, from a simple hand blender to cars and rockets. Enter the fascinating world of gears and explore the magic of Mechanical Science!

Product code: **M07**

Dimensions:
27 x 20 x 7 cm

Weight:
700 gr

Parts:
150

Connecting Points:
529



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 speed. Observe how the seats move higher and higher as they rotate faster and faster!

- How centrifugal force raises objects.
- How crown gears are used.



build a helicopter

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

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



build a hand blender

Also called an "egg-beater" this device is powered by a crank and through a combination of gears. The gears transfer power from one single input, your hand, to two rotating blades that can mix the different ingredients.

- How to output dual power from a single input.
- How rotational speed can be increased.



build a hand drill

The industrial drill can be used for drilling or screwing, and is usually powered by electrical energy. This Engino model demonstrates the more traditional technique of hand driven mechanisms and how speed can increase to a great extent by the use of gears.

- How a hand driven mechanism works.
- How to transfer power.

build a folding platform

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 revolving crane

This exciting model of a revolving crane will introduce you to the concept of gear drives. Turn the crank and revolve the crane to pick up loads from any position around the crane. Discover how loads can be raised safely by using a simulation of the ratchet mechanism.

- How worm drives work.
- What is the ratchet mechanism.



build a crane with lifting arm

Construct a model of a crane that uses a worm gear to raise the loading arm from horizontal position to vertical. Learn how worm drives can reduce speed and increase force.

- How worm drives lower speed of rotation.
- How worm drives increase force.



build a working vice

To fix materials on tables so that you can glue or cut, usually a vice is used. You can build a fully functional vice with Engino and learn how this interesting device is using the screw mechanism to help us apply huge forces with a minimum effort.

- How to convert rotational motion to linear.
- How to apply huge forces with small effort.



SCREWS & worm drives

Learn how worm drives are used to greatly lower rotational speed and how screws can convert circular motion to linear, while greatly increasing force. Build 5 working models, a screw press, a folding lifting platform, 2 cranes and a vice. A 36 page activity book is included with innovative experiments and detailed explanations of the different technological principles applied! A booklet with detailed building instructions is also included.

building instructions booklet	models appropriate for ages	models to build	hands-on activity book	activities appropriate for ages
12 pages	6+	5	36 pages	9+

Everyone knows how a screw looks like! They can be found in a variety of shapes and sizes and are used in all machines and constructions, utilizing different tasks. What many people don't know is that a screw is basically an inclined plane wrapped around a cylinder! The birth of a new simple machine is made possible by an older one! Enter the fascinating world of screws and explore the magic of Mechanical Science!

Product code: **M08**

Dimensions:
27 x 20 x 7 cm

Weight:
700 gr

Parts:
150

Connecting Points:
529



structures & bridges

Learn all about structures and how they literally support our lives! Discover the different types of bridges and forces and build 6 working models including a house, a suspension bridge, a cable-stayed bridge, an arch bridge and two different truss bridges! A 36 page activity book is included with innovative experiments and detailed explanations of the different technological principles applied! A booklet with detailed building instructions is also included.

building instructions booklet	models appropriate for ages	models to build	hands-on activity book	activities appropriate for ages
28 pages	6+	6	36 pages	9+

Product code: M09



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. Discover the two types of cable-stayed bridges.

- 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 by experimenting how the tension of the cables supports the deck of the bridge.

- The different types of cable bridges.
- The advantages of a suspension bridge.

build an arch bridge

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

- How weight is redistributed.
- The different elements of an arch bridge.

build a truss bridge

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

- The different types of truss bridges.
- How triangulation strengthens a structure.



Dimensions:
27 x 37 x 7 cm
Weight:
1100 gr
Parts:
365
Connecting Points:
1032

8 sets in 1



simple machines

This set is the combination set of the basic 8 sets of the mechanical science series. It covers all simple machines: the lever, the wedge, the wheel and axle, the screw, the inclined plane and the pulley, as well as two more mechanisms, the gear and the linkage. Build sixty working models, including cars, cranes and all different types of machines. A 68-page activity book is included with the a selection of the best experiments from the series and detailed explanations of the different technological principles applied! Booklets with detailed building instructions for all 59 models are also included.

building instructions booklet	appropriate for ages	models to build	theory book	experiments & activities
148 pages	9+	59	68 pages	31

Product code: M10



Dimensions:
34 x 47 x 8 cm
Weight:
1200 gr
Parts:
318
Connecting Points:
858

master set **design & technology**

This is the ultimate educational set as it comprises of all the different engino® classroom sets covering a wide range of subjects such as Simple machines, Structures, Forces, Energy and Motion and Renewable Energy. With this set students get a chance to experiment with all the different subjects of science and technology and engage in advanced problem solving activities. Students can build more than 90 models from this set. It comes in a plastic box for secure storage and easy handling by students. It contains the dual output engino® motor, the wired RC handset, two solar panels and 495 components with more near 2000 connecting points! Instructions in electronic format (DVD) are included for all models, while a great selection of them is also presented in printed booklets. The theory and experiments are part of the MASTER TECHNOLOGY educational software (M90) and are available separately.

models to build appropriate for ages building instructions

90

9+

DVD

Product code: **M50**



Dimensions:
31 x 43 x 15 cm

Weight:
3500 gr

Parts:
490

Connecting Points:
2030



learning objectives

- Mechanisms: levers, linkages, wheels & axles, inclined planes & wedges, pulleys, cams & cranks, gears and screws.
- Transfer of motion, changing direction.
- Changing speed and power.
- Simple and Compound pulleys.
- Types of motion and conversion.
- Newton's Laws of Motion, gravity, momentum, action and reaction.
- Solar, Kinetic and Dynamic energy.
- Structures & Triangulation.
- Types of Bridges such as Arch, Truss, Cable and Suspension.

engino master technology dvd

This interactive activity software is designed for the Design and Technology Master set. It includes 40 experiments and for each experiment and activity there are 3D interactive animations allowing the students to see how models move. The DVD also presents all background theory on the subjects of Structures, Simple machines, Newton's Laws of motion, Renewable Energy and Kinetic and Potential Energy. It includes many graphics, images and animations and 11 printable quizzes so that teachers can evaluate what their students have learned.



Learn about:

- Simple Machines
 - Levers
 - Linkages
 - Wheels & Axles
 - Inclined Planes & Wedges
 - Pulleys
 - Cams & Cranks
 - Gears
 - Screws & Worm Drivers
- Structures & Bridges
- Renewable Energy
- Forces, Energy & Motion

activities models appropriate for ages models to build

40 **9+** **90** **DVD**

Product code: **M90**



11 Theory Sections



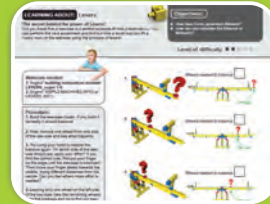
11 Quiz



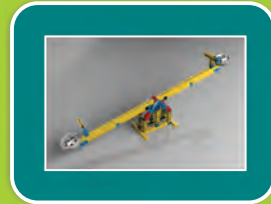
90 Instructions



90 Models



40 Student Work Sheets



90 Animations

Traditionally wooden toys have been the ideal companion to the growing child. However, most wooden construction toys offer limited capabilities due to the nature of the material. Now, the **ENGINO® WOOD ADAPTORS** make technical building a reality! These patented modular components allow complex three-dimensional frames to be created accurately and effortlessly. The components are fully compatible with the other parts of the **ENGINO® TOY SYSTEM** and snap-fit together creating a vast range of three dimensional connectors. The wood adaptors are designed to support 10x10mm wooden dowels, a common material used in Design and Technology classrooms. The ability of these connectors to also connect with other engino® parts make it an ideal add-on to any engino® set for open ended projects.



ADD-ON

wood adaptors



Product code: **M60**