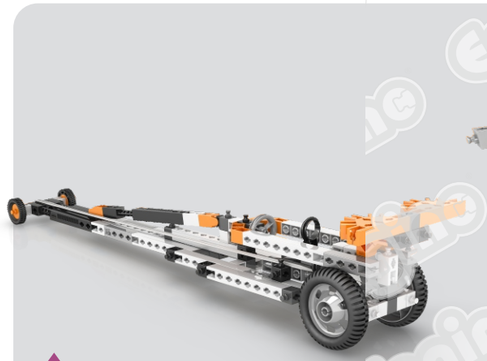
DISCOVERING STEM



build a dragster car

This fascinating model of a dragster is a huge model (60 cm long) that is self propelled by an elastic spring. Learn through experimentation how the energy stored in a tight rubber band can be converted to kinetic energy, thus gaining speed!

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

build a balloon-powered plane

There are many ways to store energy; one way is by using a balloon. Build this model and observe how the plane flies around the base when the balloon releases its air. Change the balloon's position and learn about Moment and centrifugal force.

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

build a ballistic catapult

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

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

build a collision car

Build a test car to see how momentum can throw passengers out of their car! The seats of this car are free to move after impact, demonstrating the need of seat belts.

- Which factors affect Momentum.
- Newton's 1st law of inertia.

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DISCOVERING STEM
Science • Technology • Engineering • Mathematics

NEWTON'S LAWS

inertia, momentum, kinetic & potential energy

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!**
- 6 pages of **experimental activities!**
- 3 pages of **revision quiz!**
- 5 pages of **step by step instructions!**

Engino

8 models to build
9+
master engineers
7 online instructions
1 printed instructions

Discovering **STEM**

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.

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A Use your PC or tablet and go to the following link for more models:

www.engino.com/instructions/stem07

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