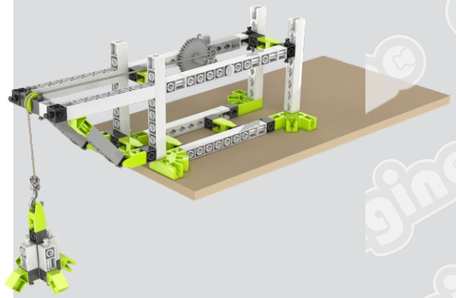
DISCOVERING STEM



build an experimental crane

This model of experimental crane simulates how dockside cranes work in commercial ports. Change among different sizes of gears and learn about the relation between force and speed.

- What a gear is and how it is used.
- What the relation between force and speed is.

build a planetarium

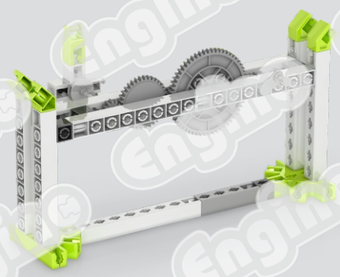
Build the planetarium model and simulate the orbit of the Earth around the Sun and around its own axis. Observe the same effect with the Moon and learn about planetary gearing.

- How a planetary gearing system works.
- How gears rotate in different speeds.

build a carousel

A visit to the amusement park excites both children and adults! Build this model of a fully functional carousel and observe how the seats rise up as they rotate faster and faster due to the centrifugal force of the spinning mechanism.

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



build a gearbox

Build this simple model of a gearbox and experiment with different gear set-ups. Learn how to calculate the gear ratio even when more complex set-ups are assembled, such as gear trains with compound gears.

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

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DISCOVERING STEM
Science • Technology • Engineering • Mathematics

AMUSEMENT PARK

LONDON EYE & MERRY-GO-ROUND

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!**
- **3** pages of **experimental activities!**
- **2** pages of **revision quiz!**
- **12** pages of **step by step instructions!**

Engino

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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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