DISCOVERING STEM

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 sissor-type linkages to raise or lower the platform.

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

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 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 be increased to a greater extent by the simple use of gears.

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

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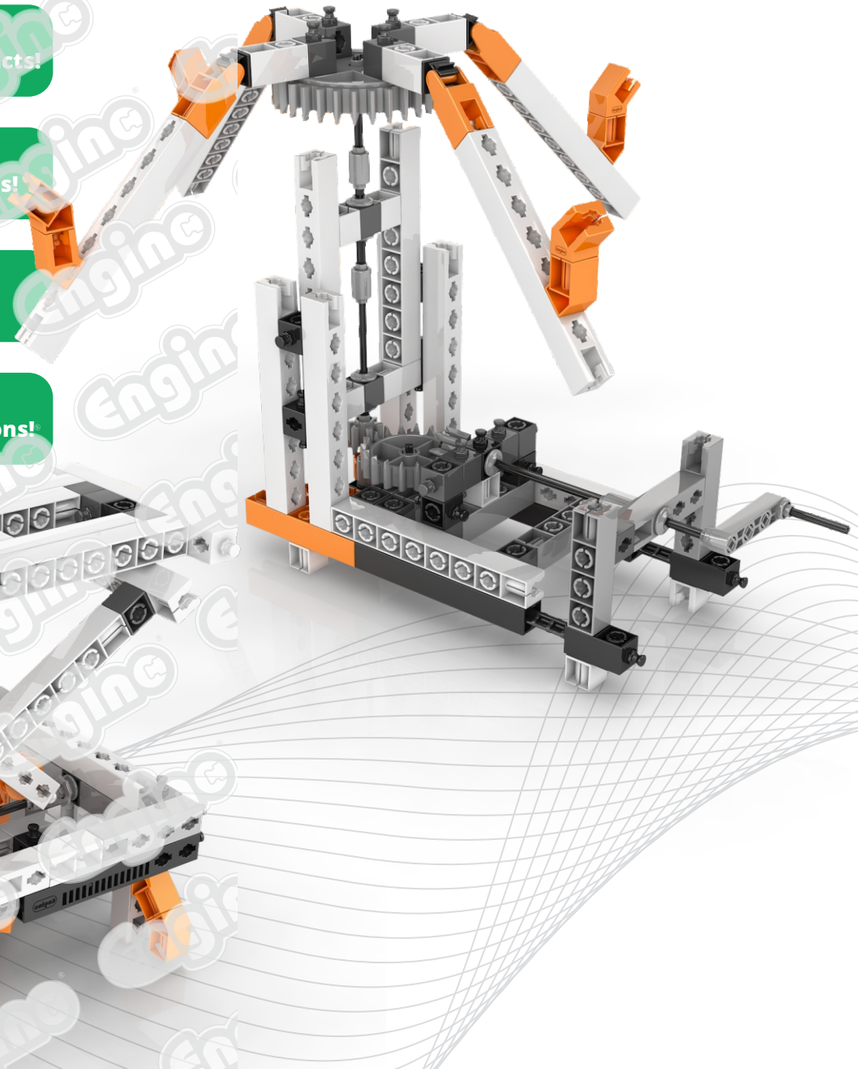
Product Code: **STEM05**
Edition 3.0

DISCOVERING STEM
Science • Technology • Engineering • Mathematics

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



Engino

12 **models** to build
9+
master engineers
11 **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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More models online

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

www.engino.com/instructions/stem05

B Download the app to discover step-by-step instructions in 3D view!

Engino kidCAD (3D Viewer) app:

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Contents

Theory

03 What we will learn
03 History of gears and worm drives
05 Definition of gear
06 Chain drive
07 Physical laws
09 Types of gears
11 Changing axle's direction
12 Definition of screw
13 Types of screws
14 Head shape
15 Tools for screws
16 Mechanical advantage
17 Worm drives
18 Rachet mechanism

Experiments

19 Relation between force and speed
20 Gear ratio
21 Carousel
22 Transfer of motion
23 Mechanical advantage of screws
24 Worm drive

Quiz

25 Exercises 1-3
26 Exercises 4-5
27 Exercises 6-9

Building Instructions

28 Experimental crane

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