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› Engino STEM Mechanics: Wheels, Axles & Inclined Planes Instruction Manual

Engino ENG-STEM02

Engino STEM Mechanics: Wheels, Axles & Inclined Planes Instruction Manual

Model: ENG-STEM02

1. INTRODUCTION

Welcome to the world of Engino STEM Mechanics! This kit is designed to introduce young learners to the fundamental principles of physics through hands-on construction. You will explore how wheels and axles utilize friction to facilitate movement and understand the mechanical advantages offered by different wheel sizes. Additionally, you will discover the practical applications of inclined planes for lifting heavy objects and how wedges function in everyday scenarios.

This set provides the components and guidance to build 14 distinct models, fostering critical thinking and problem-solving skills.



Figure 1: Overview of 14 models buildable with the Engino STEM Mechanics kit.

2. SAFETY INFORMATION

WARNING: CHOKING HAZARD - Small Parts. Not for children under 3 years.

Always ensure all components are securely connected during assembly and play. Adult supervision is recommended, especially for younger users, to ensure safe handling of all parts.

3. WHAT'S IN THE BOX

Your Engino STEM Mechanics kit includes the following:

- Instruction Manual with building guides
- Quiz Book
- Experiments Booklet
- Theory Book
- Access to a Free 3D Interactive Building App

- Various Engino building components (rods, connectors, wheels, axles, etc.)

4. ASSEMBLY INSTRUCTIONS

The Engino STEM Mechanics kit allows you to construct 14 different models. One model includes printed instructions within the booklet, while detailed 3D interactive instructions for all 14 models are available online and via a dedicated app.

4.1. Accessing Building Instructions

- **Printed Instructions:** The included booklet contains step-by-step instructions for one primary model.
- **Online Instructions:** For all 14 models, 3D and PDF format instructions are available online. Visit [Engino STEM02 Files](#) to access these resources.
- **3D Interactive App:** Download the free Engino kidCAD (3D Viewer) app from the Google Play Store or Apple App Store for an immersive building experience. The app allows you to rotate, zoom, explode, and implode models to understand each step clearly.

SCAN HERE

FOR ALL BUILDING INSTRUCTIONS
(3D & PDF formats available)

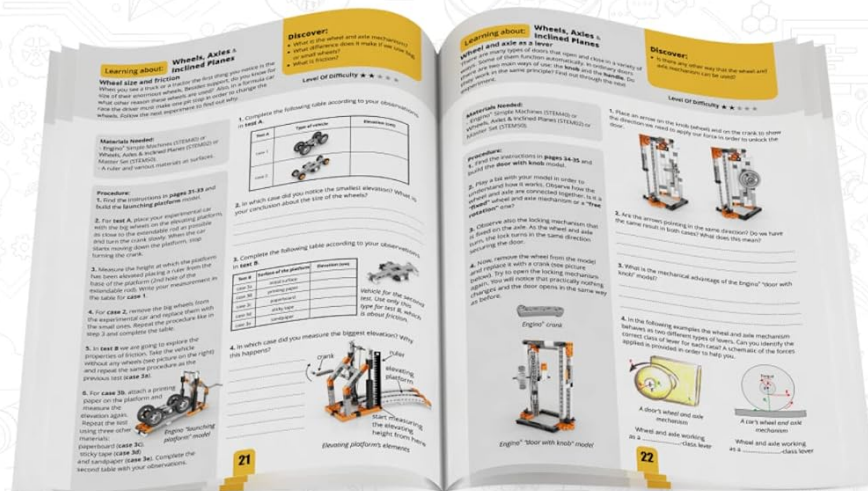
Building Instructions

1 model printed instructions (included)

13 models available online in 3D or PDF format

 **PRINTED INSTRUCTIONS INCLUDED**

Figure 2: Scan the QR code or visit the provided link for all building instructions in 3D and PDF formats.



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.



EXPERIMENTS' SECTION INCLUDED

Step by Step scientific activities to learn by doing!

Figure 3: The Engino kidCAD app provides interactive 3D instructions for all models.

4.2. General Building Tips

- **Follow Steps Carefully:** Each model has a sequence of steps. Ensure each part is correctly oriented and connected before proceeding.
- **Component Identification:** Refer to the parts list in the manual to identify each component before assembly.
- **Secure Connections:** Engino components are designed for a secure snap-fit. Ensure all connections are firm.
- **Disassembly:** Use the included extraction tool to safely disassemble parts without damage.

EXTENDABLE ROD:

By combining these two simple parts any length is possible!



Turn to lock and adjust length!

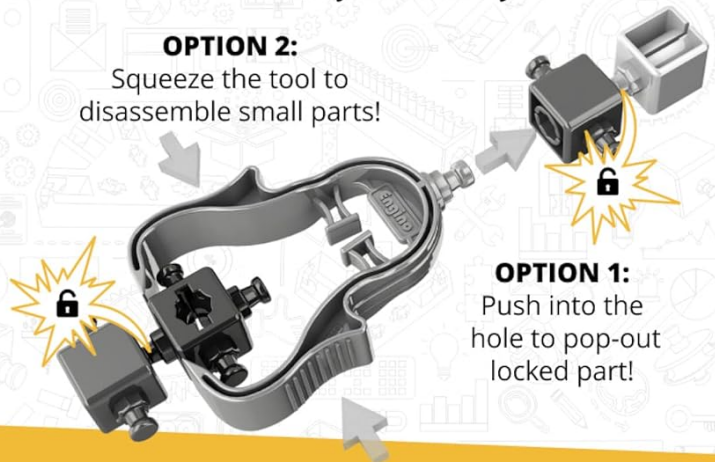
PATENTED CONNECTING SYSTEM:

With only a few snap-fit parts you can build fast and easy many different models!



EXTRACTION TOOL:

For easy disassembly!



OPTION 2:

Squeeze the tool to disassemble small parts!

OPTION 1:

Push into the hole to pop-out locked part!



ADVANCED SNAP-FIT SYSTEM

for more complex functional models...

Figure 4: The advanced snap-fit system and extraction tool for easy assembly and disassembly.

5. LEARNING & EXPERIMENTS

This kit is designed to provide a comprehensive educational experience, combining practical building with theoretical knowledge and experimental activities.

5.1. Theory and Quiz Book

The included booklet features 18 pages of theory and facts, explaining the scientific principles behind wheels, axles, and inclined planes. It also includes a 4-page quiz section to test your understanding of the concepts learned.



THEORY & QUIZ BOOK INCLUDED

Learn how Wheels use friction to move objects...
and many more!

Figure 5: The Theory & Quiz Book provides detailed explanations and challenges.

5.2. Experimental Activities

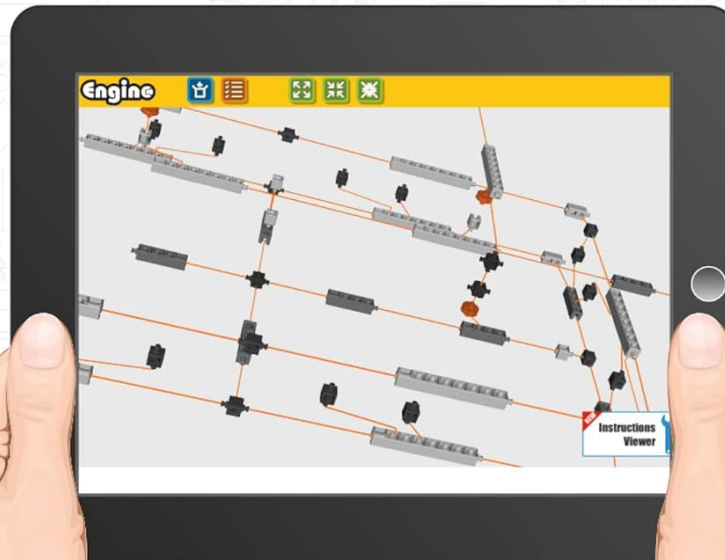
Engage in innovative experimental activities that provide hands-on learning. For example, build a car with a crane to understand inclined planes, or construct an airport staircase to explore mechanical advantage.



Engino kidCAD (3D Viewer)



- ROTATE IN 3D!
- ZOOM IN AND OUT!
- EXPLODE AND IMplode!
- FIND AND EXPLORE MORE MODELS!



3D interactive instructions
to download on your smart device



FREE APP TO VIEW 3D MODELS

Figure 6: Build a car with a crane and conduct experiments to learn how inclined planes work.

100% MADE IN EUROPE:



VARIOUS BRAND AWARDS:



 **AWARDED SYSTEM**
precision engineered to teach STEM!

Figure 7: Explore more experiments with models like the car with reverse turning wheels, car that turns, and airport staircase.

6. KEY CONCEPTS

This kit focuses on the following mechanical principles:

- **Wheels and Axles:** Learn how these simple machines use friction to move objects efficiently. Discover the relationship between wheel size and mechanical advantage.
- **Inclined Planes:** Understand how inclined planes reduce the force required to lift heavy objects, and how their inclination affects the effort and distance.
- **Wedges:** Explore wedges as a form of inclined plane and their various applications.
- **Friction:** Investigate the role of friction in motion and how it affects the movement of objects.

7. SPECIFICATIONS

Feature	Detail
Brand	Engino
Model Number	ENG-STEM02
Set Name	Mechanics: Wheels, Axles & Inclined Planes
Age Range	9+ years
Educational Objective	STEM, Engineering, Critical Thinking
Number of Models	14 (1 printed, 13 online/3D app)
Material Type	ABS Plastic
Item Dimensions	14.6 x 2.7 x 10.6 inches
Item Weight	0.67 kg
Batteries Required	No
GTIN / UPC	756619011431

8. WARRANTY & SUPPORT

8.1. Warranty Information

This Engino product comes with a **2 Year Limited Warranty**. Please retain your proof of purchase for any warranty claims. For detailed terms and conditions, refer to the official Engino website or contact customer support.

8.2. Customer Support

For additional support, missing parts, or technical inquiries, please visit the official Engino website or contact their customer service. You can also find solutions and further activities online at www.engino.com.

9. TROUBLESHOOTING

If you encounter any issues during assembly or while conducting experiments, consider the following:

- **Review Instructions:** Double-check the building steps in the manual or the 3D app to ensure all connections are correct.
- **Check Connections:** Ensure all Engino components are firmly snapped into place. Loose connections can affect model stability and functionality.
- **Missing Parts:** If you believe a part is missing, refer to the parts list in your manual and contact Engino customer support for assistance.
- **Experiment Results:** If experimental results are not as expected, re-read the theory section and ensure all variables are controlled as described in the experiment guide.

10. PRODUCT VIDEO

Your browser does not support the video tag.

Video: An overview of the Engino STEM Mechanics: Wheels, Axles & Inclined Planes kit, demonstrating various models and the educational content.

ASK A QUESTION ABOUT THIS MANUAL

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

Name

Anonymous

Email

you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. [Privacy details](#).

Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question