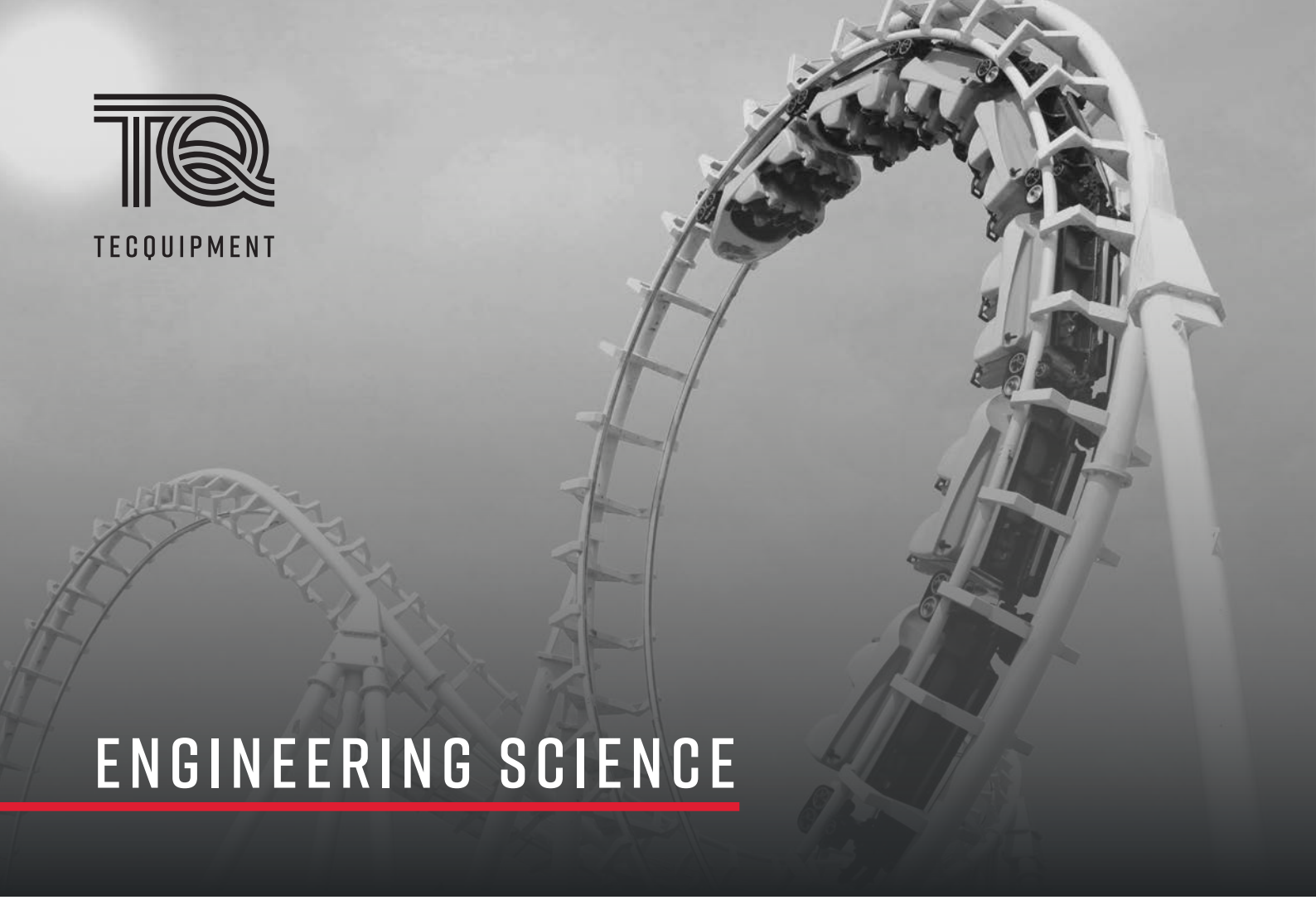
TECQUIPMENT



ENGINEERING SCIENCE

The Engineering Science range is a modular system of experimental kits that addresses the fundamental principles of mechanical engineering, including:

- Forces and moments
- Materials testing
- Vibration, friction and energy
- Simple machines
- Mechanisms

The high quality, robust kits are suitable for teaching STEM principles at beginner level, while remaining relevant for familiarisation for post-graduate students. All the hardware required to do experiments related to a particular topic are contained within a kit. These are presented in a storage tray with a purpose-made insert and checklist to ensure all parts are returned at the end of the laboratory session.

Kits can be purchased in any combination, from multiple kits for a whole class to perform the same experiment, or a selection of individual kits for demonstrating a variety of different experiments. TecQuipment also sells a purpose-built storage trolley for keeping the kits tidy while protecting them from damage when not in use.

YouTube **ENGINEERING SCIENCE PLAY LIST**

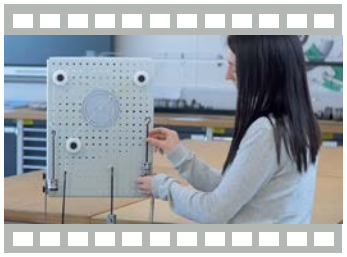
FEATURES AND BENEFITS:

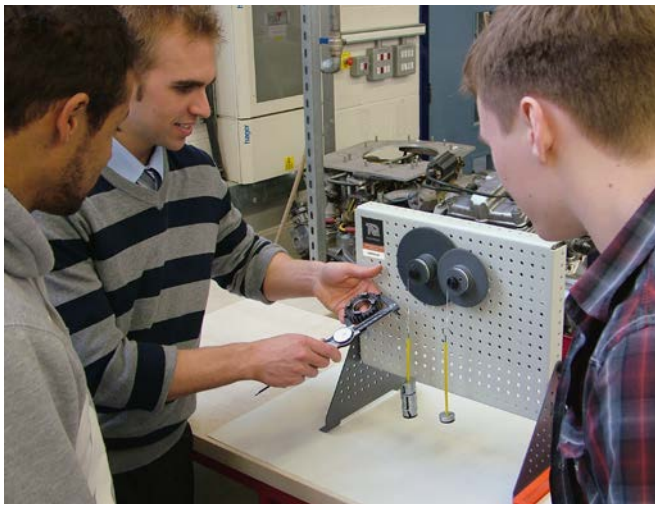
- **COMPREHENSIVE EXPERIMENT KITS:** Each kit offers multiple experiments, with over 60 experiments for the 18 kits
- **CONVENIENT STORAGE:** Kits are housed in tough, stackable trays and a purpose-built mobile storage unit offers the flexibility to expand as required
- **LONG-LASTING WORK PANEL:** Rugged, compact and easy to use, the Engineering Science work panel comes with over 1000 pages of worksheets, notes and lecture material in PDF format
- **FLEXIBLE ORDERING:** Start with one panel and one experiment, a package or buy the whole range, TecQuipment's Engineering Science range can be completely tailored to your needs and budget

ENGINEERING SCIENCE FULL SET

ESF

A complete set of TecQuipment's Engineering Science kits and three work panels within a mobile trolley.





PACKAGES

As well as the full set, these packages are also available which offer great value for money.

FORCES AND MOMENTS KIT PACKAGE ESB1

TWO WORK PANELS ES1

+

- FORCES KIT ES2
- MOMENTS KIT ES3

MATERIALS TESTING KIT PACKAGE ESB2

FOUR WORK PANELS ES1

+

- DEFLECTION OF BEAMS AND CANTILEVERS KIT ES4
- TORSION OF CIRCULAR SECTIONS KIT ES5
- TENSILE TESTER KIT ES6
- SPRING TESTER KIT ES19

SIMPLE MACHINES KIT PACKAGE ESB3

FOUR WORK PANELS ES1

+

- PULLEY KIT ES10
- DRIVE SYSTEMS KIT ES11
- GEAR TRAINS KIT ES13
- CENTRIFUGAL FORCE KIT ES16

MECHANISMS KIT PACKAGE ESB4

FOUR WORK PANELS ES1

+

- CAM, CRANK AND TOGGLE KIT ES12
- SIMPLE MECHANISMS KIT ES14
- BAR LINKAGES KIT ES15
- ADDITIONAL MECHANISMS KIT ES18

VIBRATION, FRICTION AND ENERGY KIT PACKAGE ESB5

FOUR WORK PANELS ES1

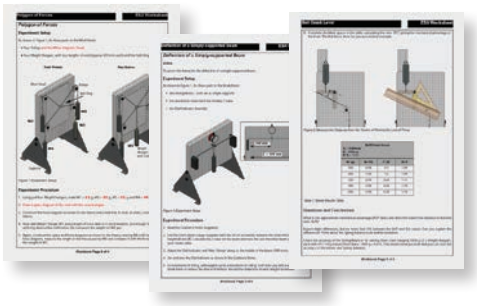
+

- SIMPLE HARMONIC MOTION KIT ES7
- FRICTION AND INCLINED PLANE KIT ES8
- POTENTIAL AND KINETIC ENERGY KIT ES9
- ROTATIONAL FRICTION KIT ES17

WORK PANEL

ES1

Multi-position work panel for use with TecQuipment's Engineering Science kits.



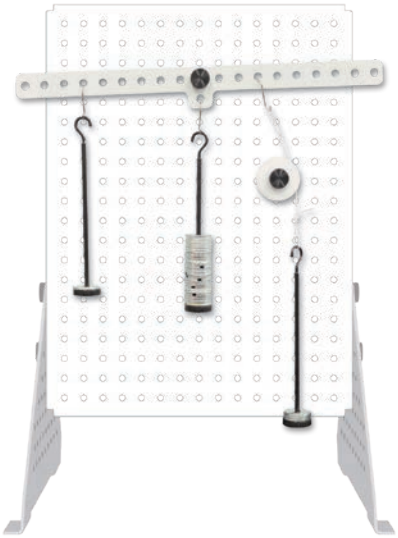
EXPERIMENT KITS POSTER

FORCES AND MOMENTS

FORCES KIT

ES2

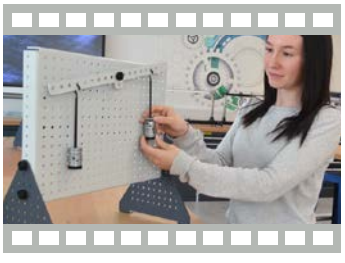
Demonstrates how to find the centre of gravity of shapes and the relationship between angles and coplanar forces, using force triangles.



MOMENTS KIT

ES3

Demonstrates the relationship between distances and forces in rigid beams and levers showing the first, second and third order levers.



DEFLECTION OF BEAMS AND CANTILEVERS KIT

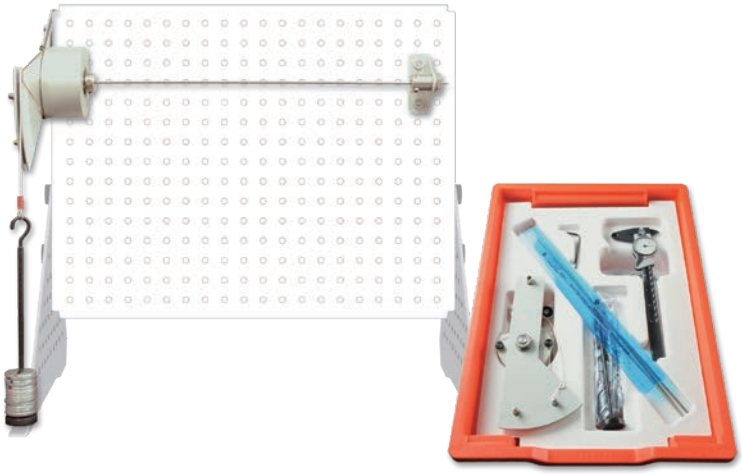
ES4

Demonstrates the deflection of beams of different materials and dimensions, held on different supports, both clamps and knife edges.

TORSION OF CIRCULAR SECTIONS KIT

ES5

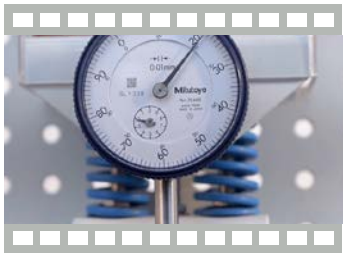
Demonstrates the torsion in circular section specimens of different materials and lengths.

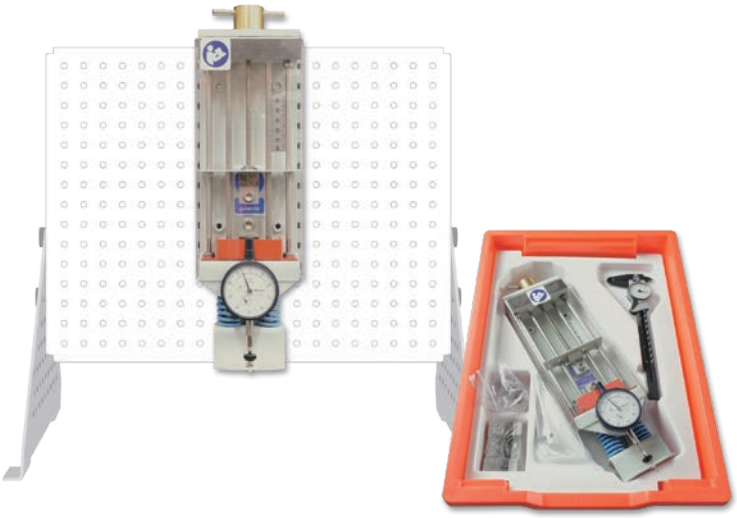


TENSILE TESTER KIT

ES6

Demonstrates the principles of tensile tests on specimens of different materials, showing material behaviour in the elastic and plastic region (Young's modulus).

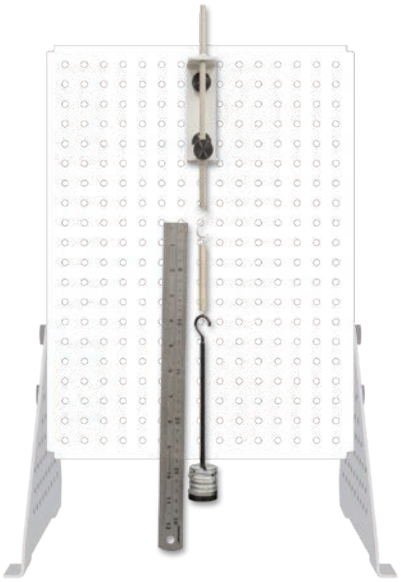




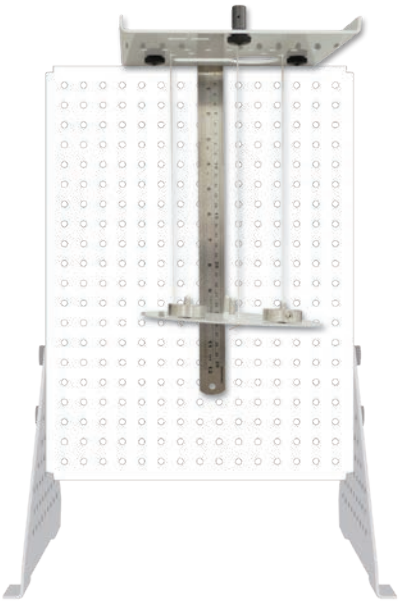
SPRING TESTER KIT

ES19

Demonstrates the characteristics of coiled springs and how to test them (Hooke's law).



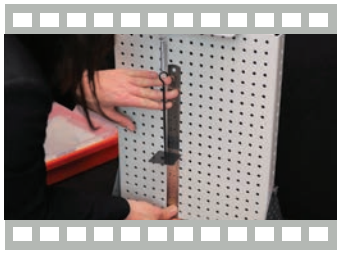
VIBRATION, FRICTION AND ENERGY



SIMPLE HARMONIC MOTION KIT

ES7

Demonstrates simple harmonic motion (oscillation) in springs and pendulums, and its usefulness.

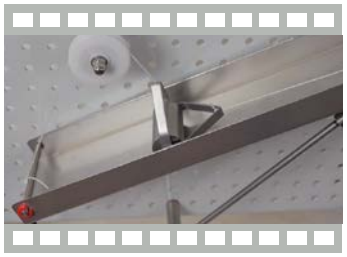


SIMPLE HARMONIC MOTION EXPERIMENT

FRICTION AND INCLINED PLANE KIT

ES8

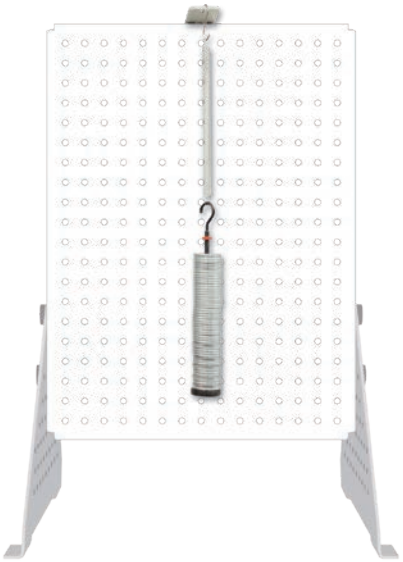
Demonstrates kinetic and static sliding friction and rolling friction on bodies and between different surfaces on a flat or inclined plane.



POTENTIAL AND KINETIC ENERGY KIT

ES9

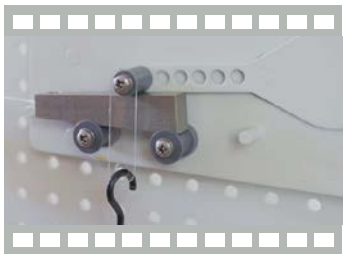
Demonstrates the difference between potential and kinetic energy and how it can change from one to the other using a pendulum or flywheel. Also demonstrates elastic potential energy in a spring.

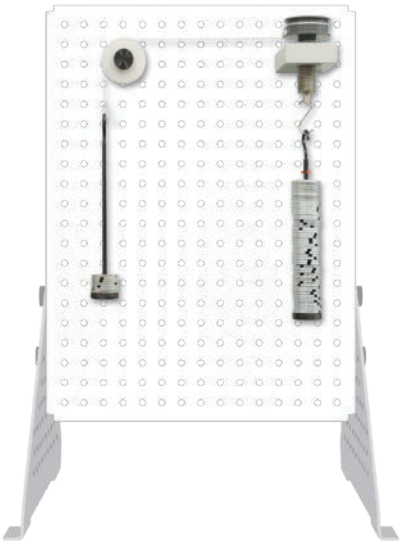


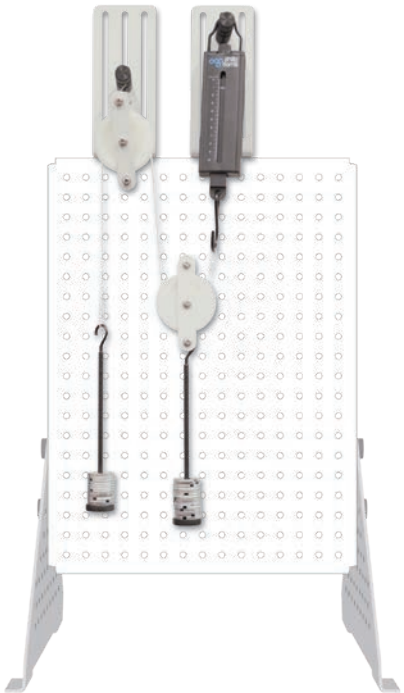
ROTATIONAL FRICTION KIT

ES17

Demonstrates how rotational friction affects the efficiency of popular machine elements, including a screw jack, wedge and different bearings.





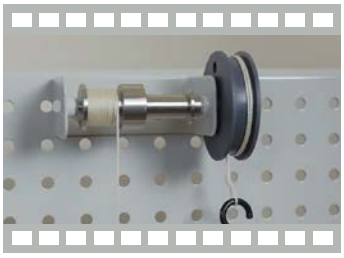


SIMPLE MACHINES

PULLEY KIT

ES10

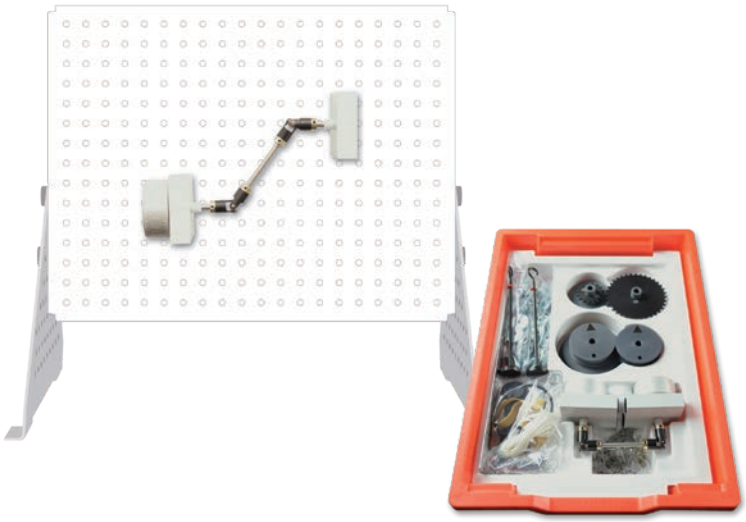
Demonstrates the mechanical advantage of different combinations of pulleys and a simple wheel and axle.



DRIVE SYSTEMS KIT

ES11

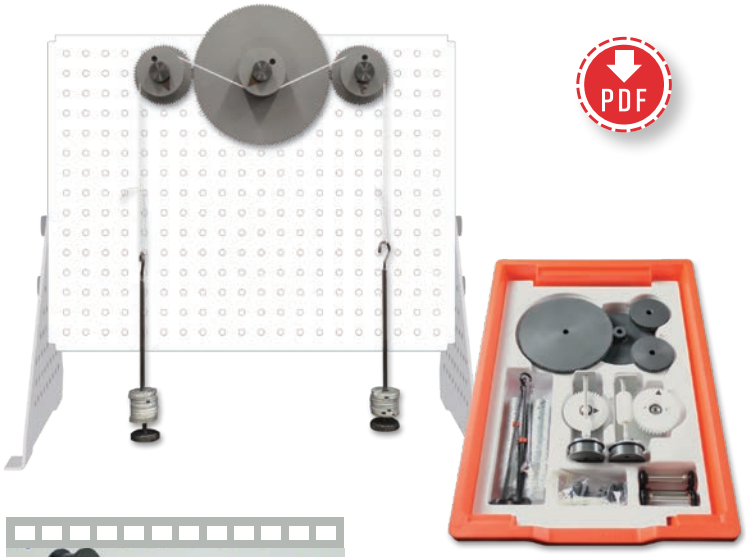
Demonstrates the advantages and disadvantages of three popular drive systems (belt, chain and a universal coupling) using a manually rotated frame with a low-friction cantilever linkage, adjustable masses and a spring to apply force.

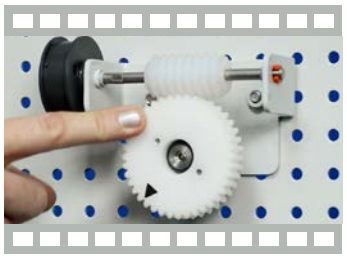


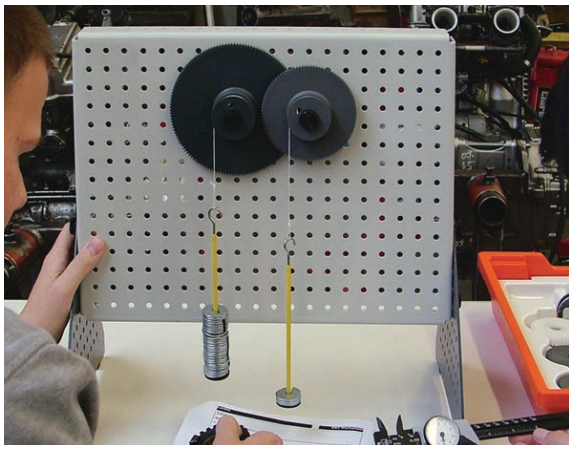
GEAR TRAINS KIT

ES13

Demonstrates the characteristics of a spur gear, bevel gear and a worm drive.







CENTRIFUGAL FORCE KIT

ES16

Demonstrates the relationship between centrifugal force, radius and velocity of rotating masses.

CAM, CRANK AND TOGGLE KIT

ES12

Demonstrates the characteristics of a mechanical toggle, crank motion and the most popular shaped cams: pear, heart, round and snail.

SIMPLE MECHANISMS KIT

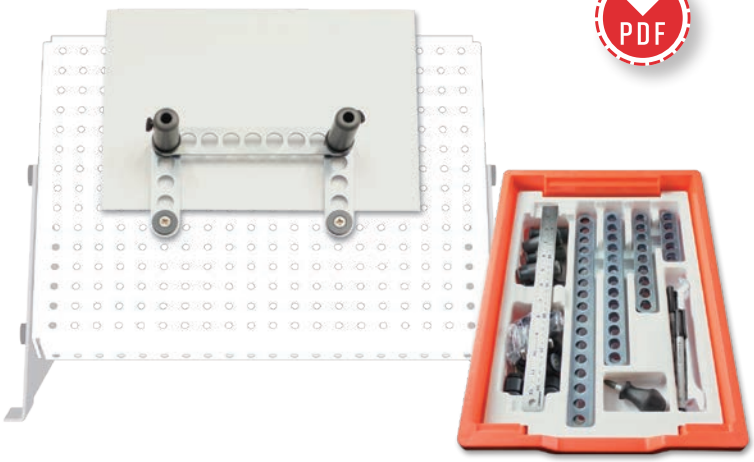
ES14

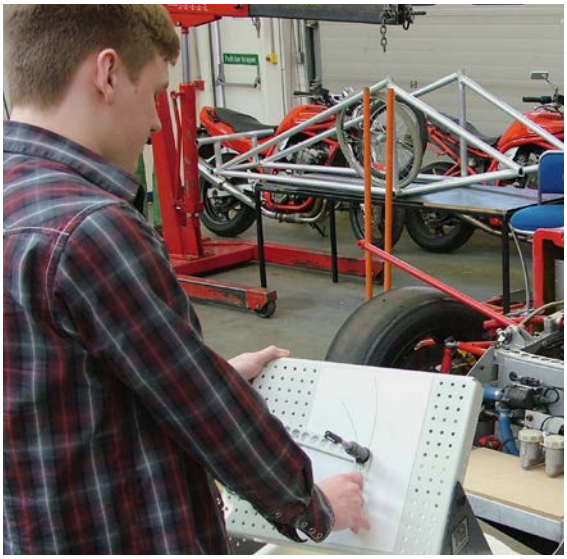
Demonstrates how the Scotch yoke, crank and slider and quick return mechanisms convert motion.

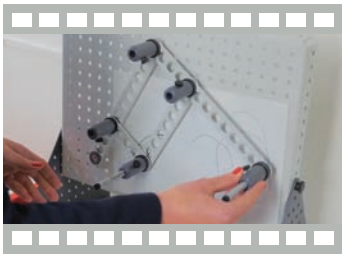
BAR LINKAGES KIT

ES15

A set of bars and pivot joints for students to understand different bar linkages and mechanisms.



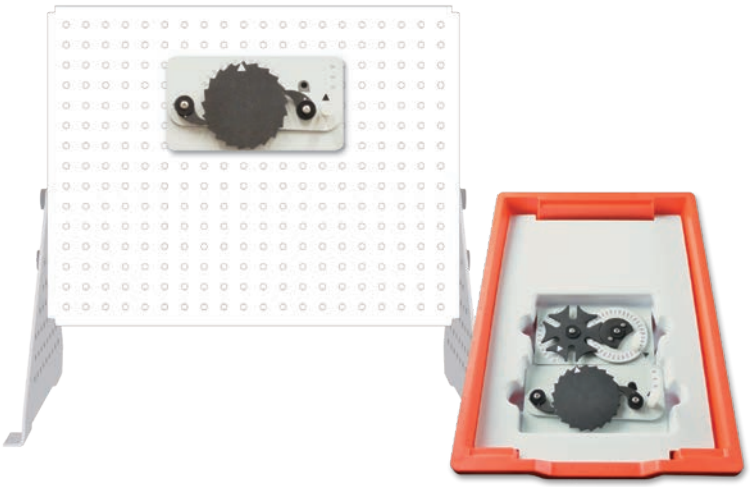




ADDITIONAL MECHANISMS KIT

ES18

Demonstrates how the Geneva mechanism and a ratchet mechanism convert motion.



STORAGE EQUIPMENT

STORAGE UNIT EST

A mobile trolley for use with the Engineering Science kits. This trolley allows lecturers or teachers to safely and tidily store up to 24 trays in one mobile unit.

TRAYS AND LIDS ETL

A set of five trays and lids. Identical to those used for the kits, so they fit and stack in the same way.

SPARES AND CONSUMABLES

SPARE PARTS KIT ESX

This kit includes spares of the most common parts used in the other Engineering Science kits, including fixings, weights, hooks and cord.

STOPWATCH SWI

An easy-to-use, accurate, hand-held digital stopwatch.

WEIGHT SET WT

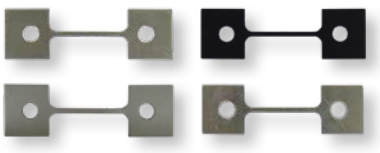
WT: A set of 10 g masses and weight hangers

WEIGHT SET WTL

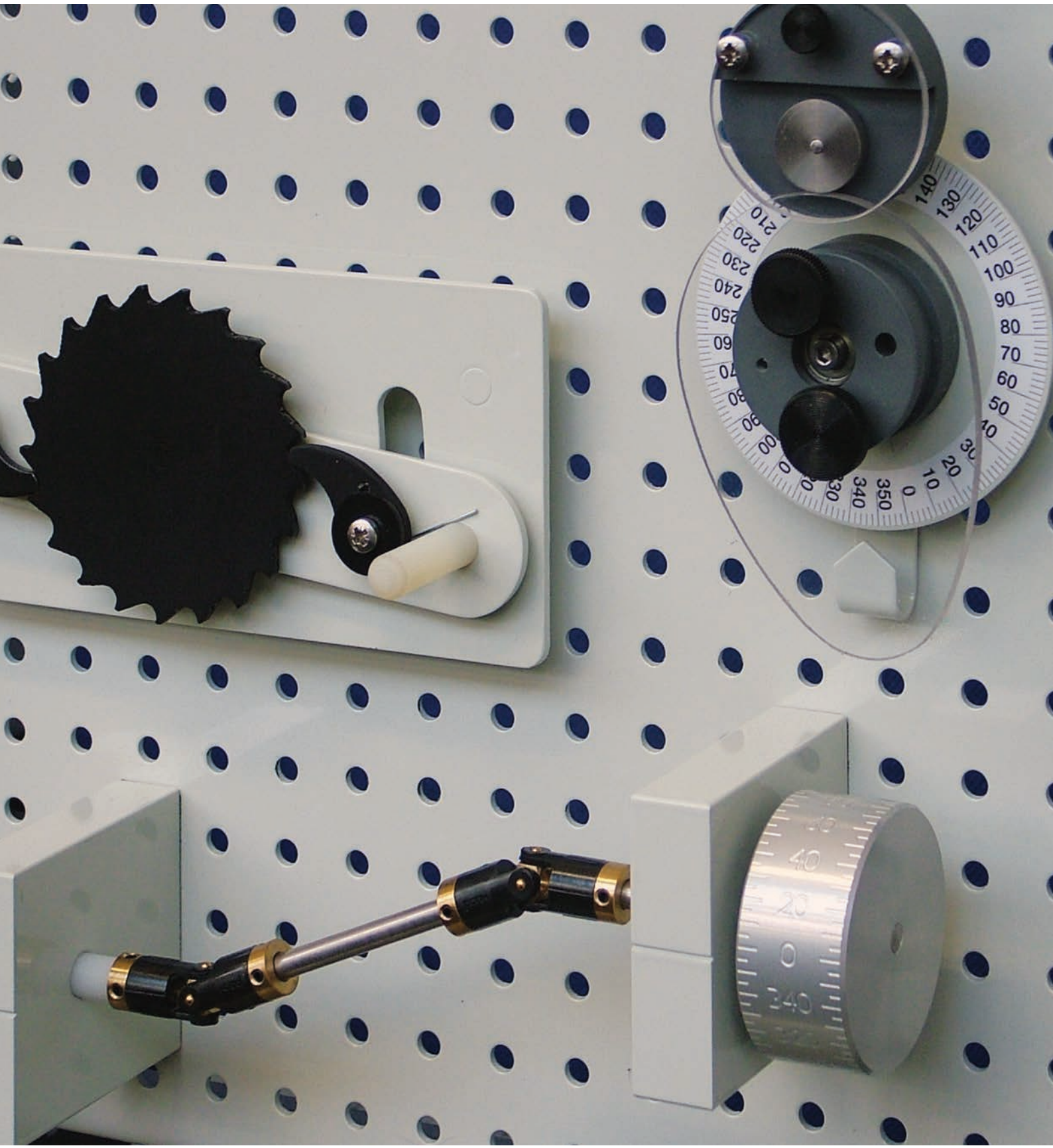
WTL: A set of 1 g masses

TENSILE TEST SPECIMENS MTT

Specimens made from a choice of four different materials for use with the Engineering Science Tensile Tester (ES6).



TECQUIPMENT



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TECQUIPMENT.COM