



Products Update

The range of TEP resources continues to expand and prices for 'staple' items continue to fall thanks to colleagues reporting their needs and placing regular orders. This has enabled us to make available products such as **light dependent resistors at the lowest UK price**. Your support has also enabled the TEP-TR partnership to originate entirely new products such as the rocket car – and to create a comprehensive design bookshop. Can we also take this opportunity to thank you again for helping to make design and technology the most richly resourced and exciting place in the curriculum.

ROCKET CAR

Based on the ever popular rocket factory, this new system proved an instant hit at the Design and Technology show. It provides exceptional opportunities for pupils challenged to improve vehicle performance as well as for group competitive events. Because the car launch pressures can be adjusted, the system can be used anywhere indoors as well as outside. Depending on pressure, a typical model will travel anything from 2M to 25M at speeds up to a (real) 30mph.

Cars are manufactured around ultra-low cost paper tubes capped at one end. The many variables affecting performance include wheel types, bearings, overall body design, mass, aerofoil fins and even suspension if added.

Complete rocket car starter pack

The starter pack includes all you need to get started with the Rocket Car system, except a foot pump (available separately - see below). The pack includes:

- Launcher
- Firing box (requires 2 x PP3 batteries)
- Car body mandrel
- Sample nose caps
- Corriflute base
- Wheels and axles

➔ **Rocket Car Starter Pack** – stock code 322-056 – £115.00

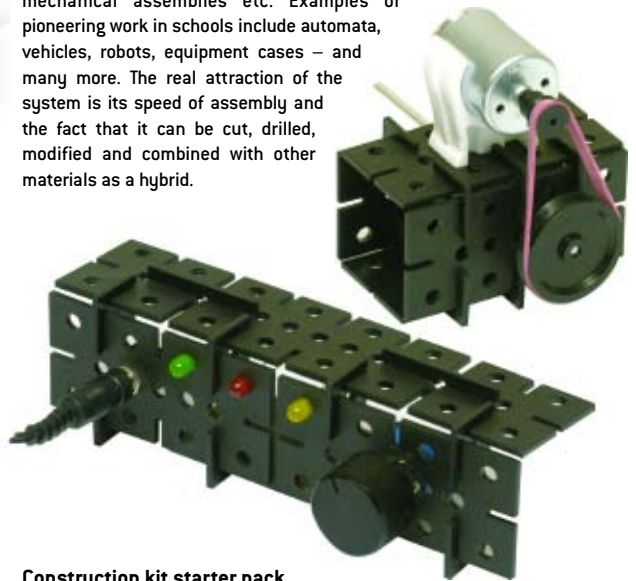
Please note: this differs from the rocket factory in several respects because of anti-tilt safety features. Unfortunately, the two systems cannot be modified for dual use.

Please note: a suitable foot pump is required such as TA1 002.



RAPID PROTOTYPING SYSTEM

The term rapid prototyping is now closely associated with 'growing' three dimensional shapes using scanning techniques. Less publicised is the fact that professional mechanical prototyping systems are used increasingly to develop engineering design ideas, test performance – and even prototype entire production lines. Systems have been used in schools in the past but have often proved expensive and difficult to control. TEP now has access to a professional slotted plate system whose basic four parts are inexpensive enough to be consumable. The tough polypropylene mouldings can either be slotted together or joined, for example, using screws and nuts to create box sections, frames, mechanical assemblies etc. Examples of pioneering work in schools include automata, vehicles, robots, equipment cases – and many more. The real attraction of the system is its speed of assembly and the fact that it can be cut, drilled, modified and combined with other materials as a hybrid.



Construction kit starter pack

Pack includes 20 full plates, 20 half plates, 40 corners, 40 H-joiners, 50mm of softlink tubing, 2 x 300mm lengths of aluminium axle rod, 20 x M4 screws, 20 x M4 nuts, 6 x shoulder washers, 1 x instruction booklet, 1 set of plastic gears, 4 x plastic wheels and 1 set of cams.

➔ **Construction Kit Starter Pack** – stock code 131-109 – £6.00

The four parts are also available as bulk packs:
(Full plate size approx. 70 x 33 x 2mm)

	Quantity	Stock Code	Price
➔ Full Plate	100 pieces	131-108	£5.00
➔ Half Plate	200 pieces	131-106	£6.00
➔ H-joiner	150 pieces	131-105	£3.00
➔ Corner Joiner	150 pieces	131-107	£3.00

Plastic Tubular Bushes

For joining pairs of plates.
Pack of 100 in assorted colours.

➔ **Plastic Tubular Bushes** – stock code 131-110 – £0.60



Disposable Reamers

For reaming holes to accept shoulder washers so that system can be used with 3mm axle. Reaming is done by hand in seconds.

➤ Disposable Reamers – stock code HIL 200 – 1-9 £0.08 10+ £0.07



Twist Drill Pack

Pack includes six drills from 4.5mm to 5.0mm in 0.1mm increments.

➤ Twist Drill Pack – stock code HIL 201 – £3.70



Threaded Brass Inserts (10-pack)

With a 4mm diameter thread. May be force fitted into holes in plates (after drilling). This provides an extended range of connection possibilities.

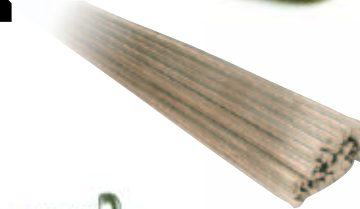
➤ Threaded Brass Inserts – stock code HIL 203 – £1.50



Steel Axle Shaft (Pack of 10)

4mm dia. x 300mm lengths.

➤ Steel Axle Shaft – stock code HIL 202 – £0.75



M4 Nuts & Screws

A bag of approx. 1000 M4 screws, 12mm long or M4 nuts.

➤ M4 Screws – stock code TS6 012B – £5.60 per bag
➤ M4 Nuts – stock code TS8 010 – £2.90 per bag



MATERIALS

The range of smart materials continues to expand with a new 'trainable' metal alloy, an instant response smart spring, and a remarkable biodegradable polymer film that literally disappears before your very eyes when wetted. Apart from its practical uses in unusual applications (e.g., water-actuated switches, release triggers for deployable structures), the film tells a fantastic 'green' story in demonstrations. The cost is low enough for pupils to have their own piece for investigations.

Ecofilm

This thick plastic film, long awaited by industry, has the magical property of disappearing almost instantly when it gets wet. It is supplied as a 900mm wide flexible (almost) clear film 75 microns thick and is sold by the metre. The material is supplied with an information leaflet that explains more about the film and its potential uses both in industry and in the context of designing and making. Uses in project work include simple water-activated alarms (e.g., contacts close or clockwork starts running when the film dissolves); water activated containment devices (e.g., a spring-loaded structure opens or the contents of a glued bag are exposed under water); graphic products such as bags and posters that bio-degrade at an accelerated rate.

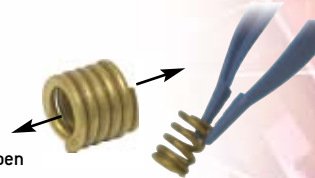
➤ Ecofilm – stock code 322-046 – £1.80 per metre



Two-way Smart Springs

These are made from a brass shape memory alloy. The springs close tightly below 90°C but open suddenly above this temperature. The springs provide an ideal demonstration of what a shape memory alloy can do – and provide many project opportunities such as slow acting motors and actuators.

➤ Two-way Smart Spring – stock code PAC SW7 – £3.07



Memory Wire

Unlike previous shape memory alloys (SMAs), this amazing 0.78mm diameter wire can be 'trained' to remember shapes. It is simply held in the desired shape and heated above 120°C for a few minutes. After that it can be folded and bent into other shapes, but will always return to its trained shape if heated in - say - hot water. For the first time pupils and students can make their own 'smart springs'.

➤ Memory Wire – stock code PAC SW6 – £6.89 per metre



Continued overleaf ➤



The Middlesex University Teaching Resources website has a vast selection of products for all types of projects and classroom experiments. Categorized into different product sections, items can easily be found, or you can perform a simple site search. Secure online ordering and special low prices for schools.

teaching resources





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ELECTRONICS KITS

Design and technology is the curriculum hotspot for teaching and learning about electronics. The creative design and make opportunities are endless not least because costs of components have been falling in real terms for some years. These falling costs are reflected in a range of new kits that provide working circuits as building blocks for creative designing and making. The circuits will work first time, every time but the unlimited opportunities to use other components mean that an entire Key Stage 3 electronics programme can be built around just a handful of ultra-low cost component types.

Light Sensor with LED Output (10 pack)

LED will illuminate in low-light conditions. Includes 10 light dependent resistors. Requires a 3V to 9V supply.

📦 Light Sensor with LED Output – stock code PAC 2001 – £7.30

Temperature Sensor with LED Output (10 pack)

LED will illuminate at about body temperature (adjustable by setting the small potentiometer on the board). Includes 10 thermistors. Requires a 3V to 9V supply.

📦 Temperature Sensor with LED Output – stock code PAC 2002 – £7.30

Humidity Sensor with LED Output (10 pack)

LED will illuminate as humidity increases - e.g. by breathing on the sensor or holding the sensor over hot water. Includes 10 humidity sensors. Requires a 6V to 9V supply

📦 Humidity Sensor with LED Output – stock code PAC 2003 – £11.70

Low-cost sensors also available separately:

- 📦 Mini LDR (5mm dia.) – stock code EL1 002A – £0.06
- 📦 Thermistor – stock code ER4 1K – £0.07
- 📦 Humidity Sensor – stock code SEN 001 – £0.50

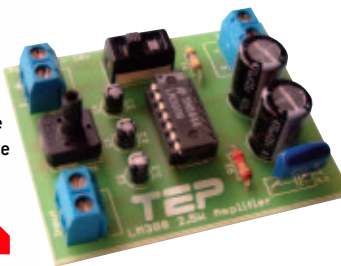
Amplifier Kit

At last a high quality, high-output audio amplifier kit for general purpose use. It can also be used within the TEP loudspeaker project (DIY loudspeaker using a rare earth magnet and simple coil). Circuit is based on the popular LM 380 chip. Some soldering is required.

📦 Amplifier Kit – stock code PAC 2000 – £6.50

BOOKS

Colleagues still mourn the passing of the Design Centre and its wonderful bookshop. Because TEP and TR get so many requests for specific books, we have created the TEP Bookshop specialising in high quality publications for resource libraries. The titles range from books in print such as Thames & Hudson's wonderful *Extreme Textiles* to iconic books still available in the UK at original prices but discounted in America. We have imported many titles to pass on these savings. The huge, definitive and beautiful book *Aluminium by Design* is one example. Buy it here while stocks last at £19.20 – (this retails at £60.00 from other bookshops!)



teaching resources



The 2006 TR catalogue contains some great extracts and ideas for projects from previous News and Views articles as well as a wealth of supporting information on individual items. If you have not received yours please contact:

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