



Products Update

This issue continues the engineering theme somewhat with a range of fasteners and components to support engineering courses and add value to 'engineered' products in D&T.

Thanks to the support of colleagues, we are beginning to run out of printed space to list all the new products and price reductions! Please keep an eye on the TEP and TR web sites for more regular updates. See, for example, the 20 new jewellery items not listed here and look out for news on bearings as different sizes come in at the lowest UK prices.

Ball Bearing Races

Shortly after the 22mm bearing races were advertised in the TR newspaper, demand almost outstripped supply and we had to re-stock at higher levels. As part of the arrangement we also purchased a range of smaller bearings to sell at the same price. These smaller bearings actually cost much more than the original size over the counter, but we are offering these at below cost to encourage their use. (Please remember that any of these bearings can typically cost up to £5.00 – and this explains why they have rarely been used in schools until now.)



Bearing races are very simple to use and they will improve the performance of anything with a turning shaft where misalignment is likely to occur. The bearing(s) are simply pressed into an interference fit hole in any material and the shaft inserted. Uses range from simple wooden automata to higher level engineered products like robots.

Bearings				
Code	Outside diameter	Inside diameter	Price	
TB6 011	22mm	8mm	£0.35 each	
131-026	19mm	6mm	£0.35 each	
131-025	16mm	5mm	£0.35 each	
131-024	10mm	3mm	£0.35 each	

Roller Pins

These pins have been specially sourced from the manufacturer of precision roller bearings. Precision ground pins are used in a variety of engineering contexts, but they usually come at a high price. These highly polished pins have been sourced at a fraction of the normal commercial cost and are likely to open up a new area of pupil and student work. In brief: the pins can be used as:



- shafts (3-5mm) for one of the above bearing races
- shafts (2mm diameter) for our small white gears
- joining pins (location or pin jointing) for metal and plastic assemblies
- joining K'lick construction parts

Roller Pins				
Code	Diameter	Length	Price (per 10)	
131-016	5mm	39.8mm	£0.95	
131-017	5mm	19.8mm	£0.40	
131-018	4mm	39.8mm	£0.80	
131-019	4mm	19.8mm	£0.30	
131-021	3mm	39.8mm	£0.40	
131-022	3mm	19.8mm	£0.20	
131-023	2mm	19.8mm	£0.10	



For joining, the pins are simply pushed through interference-fit holes - and, for convenience, we are stocking drills for this purpose. The pins can thus be used to create parallel sided enclosures such as gearboxes, racks to mesh with laser-cut gears, and even jewellery. Please note: the pins are sold in multiples of 10

HSS drills for roller pins (for interference fit holes)

HSS Drills			
Code	Pin diameter	Drill diameter	Price (each)
131-027	5mm	4.9mm	£0.53
131-028	4mm	3.9mm	£0.43
131-029	3mm	2.9mm	£0.30
131-030	2mm	1.9mm	£0.31

'Designer' Screws and Nuts (4mm)

To add to and complement the new engineering components, a small range of black socket head screws has been added to the conventional nuts and screws. These are often used as 'designer' features on bikes, motorcycles and cars and high street products and they can be used to equally good effect on small scale project work.



Black Socket Head Screws		
Code	Length	Price
131-111	10mm	£0.03
131-112	20mm	£0.07
131-113	25mm	£0.08

4mm nuts (pack of 100)	
Code	Price
NUT 003A	£1.00

ALU Composite

A perfect complement to the use of the new engineering parts is this fantastic plastic/metal composite complete with a high-gloss finish. This material can be drilled or punched to accommodate pins or bearings or screws – and these combinations, in terms of appearance alone, confer a feeling of precision and quality. The composite is made up of a thick layer of polythene sandwiched between two painted aluminium foils (0.3mm thick). It is easy to cut (ideally with a guillotine) and shape with most hand or machine tools.



ALU Composite				
Size	Colour	Thickness	Code	Price
300x300mm	white	2mm	234-005B	£3.90
300x600mm	white	2mm	234-005A	£7.80
300x300mm	red	3mm	234-006B	£4.80
300x600mm	red	3mm	234-006A	£9.60
300x300mm	green	3mm	234-008B	£4.80
300x600mm	green	3mm	234-008A	£9.60
300x300mm	yellow	3mm	234-007B	£4.80
300x600mm	white	3mm	234-007A	£9.60
300x300mm	blue	3mm	234-009B	£4.80
300x600mm	blue	3mm	234-009A	£9.60

Super-elastic Wire (0.8mm diameter)



This is an addition to our existing 0.3mm super-elastic wire (PAC SW5). Like the former, it can virtually be tied into knots but will spring back to its original condition unharmed. It is used commercially for unbreakable spectacle frames, but has many uses in design and technology including jewellery (e.g., a frame for threaded beads or linking acrylic pieces), mechanisms (e.g., hinges on mechanical devices such as robot arms).

Super-elastic Wire

Size 0.8mm dia – Stock code PAC SW13 – £3.19 per metre

Memory Wire

This is now available in a new diameter (0.5mm) as well as the original diameter (0.78mm). The existing and new sizes are available at lower cost for a 5metre coil.



Memory Wire

0.78mm x 5M – Stock code PAC SW6A – £18.50
0.50mm x 5M – Stock code PAC SW11A – £18.50

EL (Electro-luminescent) Wire Kit

This remarkable glowing material – described as flexible neon tubing – is already available from TR in unlimited lengths that can be connected to the special inverter power supply. For convenience, we also supply it as a complete product containing a 2AA battery-operated inverter and a length of wire with a fitted plug. Intended for lighting up cycles etc, these kits can be easily adapted to design and make projects and in product design or graphic products since the rope can be cut with scissors to any length – or extended using our existing EL products.



600mm of EL wire (+inverter) – Stock code EL 010 – £6.30

Flexible Mirror Film

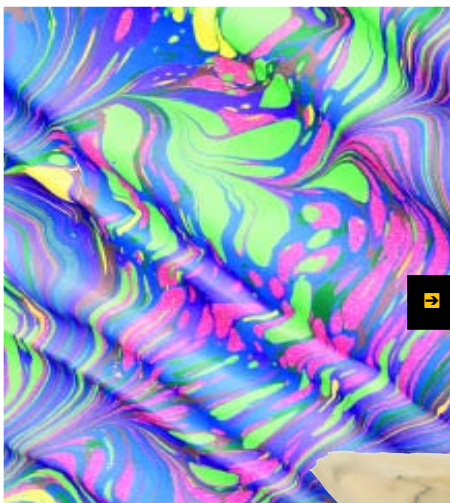
This is a new addition to our existing 1.5mm mirror polystyrene (CS6 004P). It consists of a flexible 125micron thick film with a perfect mirror coating that can be folded to give concave or convex surfaces – e.g., reflectors for dynamic lighting effects, concave mirrors for concentrating heat/sunlight, and many other optical devices such as the 'magic mirror' illustrated.

The sheet is 420mm wide but is supplied untrimmed with an additional rough-edge margin



Flexible Mirror Film – Size 410mm wide – Stock code 243-001A – £2.86

Hand Marbled Paper and Cuttle Fish.

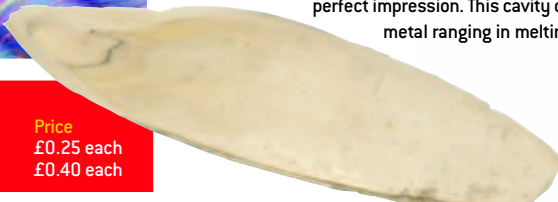


As a result of demand, we make no apology for re-introducing these two traditional but fascinating materials. The paper is hand made by one of the world's leading marbling specialist who produces papers for national museums, private presses etc. Each sheet is unique and is supplied in a pack containing four different patterns. With a total area of approximately 1.5 square metres, a single pack will go a long way in graphic design applications.

[Note: marbled paper is made by mixing immiscible colours on a fluid surface and transferring them to paper to fix the fractal-type images. The process is even used scientifically to record flow patterns!]

Hand Marbled Paper – 25cm x 35cm – Stock code 243-002 – £10.00 (4 sheet pack)

Cuttle fish bone has a long history as a medium for metal casting and is a renewable resource since it is washed up onto most beaches. The item to be cast is modelled in acrylic (or similar) and then pressed into the yielding cuttle fish bone to leave a perfect impression. This cavity can then be filled with any molten metal ranging in melting point from pewter to silver.



Cuttle Fish Bone

Size	Code	Price
6"-8"	PC1 002A	£0.25 each
10"-12"	PC1 002	£0.40 each

<http://www.mutr.co.uk>



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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Polyacrylamide

This completely non-toxic powder absorbs up to 500 times its own weight in water and is the 'secret' ingredient used in applications ranging from babies nappies to perpetual growing plants. When exposed to water, the powder transforms into a gel which holds the water for an extended period. This material can be used in the design and manufacture of water absorbers (e.g., graphics projects), as the water-retention agent in products supporting plant growth (e.g., terrariums) – and even as water sensors in electronics.



📦 Polyacrylamide – stock code 233-003A – £5.28

Power Meter

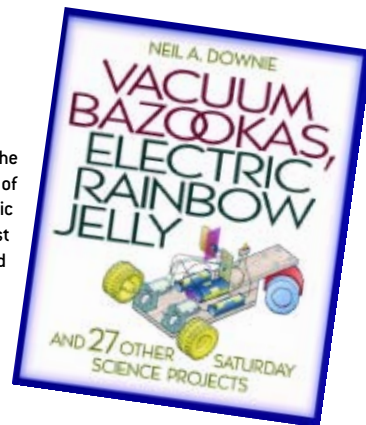
Connected between the mains socket and an appliance (light bulb to electric heater), this meter indicates power consumption and enables investigations into comparative energy use. It is especially useful in the context of energy consumption and lighting.



📦 Power Meter – stock code POW 001 – £16.50

📖 TR Book Shop: New Additions

New high-quality design books are being added to stock every week, so please refer to the TR website for more details. One unusual addition worth mentioning here is the first of three books written by a leading UK scientist. Offering simple recipes for making fantastic gadgets, this book has achieved a cult following in the US. We include it in our list because the ingenious ideas it contains offer many starting points for designing and making – as well as providing interest and inspiration.



📦 Vacuum Bazookas & Electric Rainbow Jelly
Stock code BB6 261 – £14.95

TR Computer Accessories

TR supplies computer accessories to Middlesex students, and we are pleased to pass on the purchasing benefits to schools. A full listing of products is provided on the website including, for example, the Canon Pixma MP150 – a combined printer, scanner and copier.



📦 Canon MP150 – stock code TPUSB 023 – £54.00



teaching resources



The 2006 TR/TEP 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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Please note: due to high volumes passing through TR, makes and models of IT accessories may change, but these will be notified on the website.