

# NEW PRODUCTS UPDATE

## Plane Factory

The Plane Factory is an important spin-off from TEP's celebration of the Wright Brothers' centenary. Developed for use at the National Space Centre, the Plane Factory enables paper aircraft to be launched and tested at extremely high speeds – with spectacular results.

Designing and making paper aircraft is a growth industry. Evidence of this comes from the number of books on the subject and the growing interest world-wide by professional engineers as well as 'amateurs'. Apart from the fun and competitive element of making these models, there is a serious side: understanding structures (a notoriously difficult subject to motivate pupils), learning about control, and objective testing of performance.

The Plane Factory consists of a solid steel case containing two-high speed contra-rotating rubber wheels. When a plane is inserted between the wheels, some of the energy is transferred and the plane is suddenly accelerated – at up to 80 mph. The launch speed (and repeatability) is far greater than can be achieved manually. Any minor adjustments to the plane's control surfaces – e.g. a subtle fold to give spin or direction – shows up very clearly and points the way to further design modification.

The Plane Factory was originally developed for special events such as feeder school days and public participation at exhibitor attractions. It is now available complete with power supply unit and sample plane ideas from Teaching Resources.

## Fast seeds

From plane launchers to seeds is not such a big step in the context of design and technology. TEP has been working with colleagues on a grow-your-own food initiative that genuinely brings together elements of food technology and work in resistant materials. The key to this is the commercial availability of an ultra-fast germinating seed within the brassica family. This can be grown like conventional cress, but has a more distinctive 'pepper-like' flavour. It is now available at low cost and offers wonderful opportunities for designing and making products demanding investigation (germination times etc.), and creative container design. Ideas so far range from throw-away vacuum-formed cases that might be sold in a supermarket to roll up seed-impregnated paper blankets activated by wetting to make an edible crop in hours! The seeds are now available in quantities of 0.25kgs, 0.5kgs, and 1kgs – sufficient for whole cohort participation at less than 1% of the cost of buying seeds retail.

## Ferrofluid

And from seeds to the fourth state of matter! Ferrofluid is a liquid containing molecule-size magnetic particles. In effect, it behaves as a liquid ferrous metal and is attracted or repelled by magnets. Although a highly exotic material, it is already used in a number of everyday products including loudspeakers where it sits between the permanent magnet and moving coil to improve efficiency, and help dissipate heat at high power levels. It is also finding applications as a dynamic sealing material (around high-speed bearings) and in intelligent suspension systems in cars.

TEP can now supply small demonstration quantities in a pack also containing the world's most powerful permanent magnet made from rare earth materials. When the magnet is brought near the liquid, the result has to be seen to be believed. The ferrofluid tries to take up the shape of the magnetic field and erupts into a multi-pointed star shape. Although ferrofluid might not yet have any obvious applications in design and technology (or does it?), the pack makes for a fascinating demonstration of both fluid and magnet at KS4 and A level.

## Instant colour aluminium

Many colleagues have wanted to anodise and colour their own aluminium for small work such as jewellery but have been put off by attempting the whole process. TEP now offers an ideal solution: anodised aluminium but not sealed or coloured. You simply colour it with felt-tip pens (spirit or water-based) or practically any other colouring media, and then wipe it with cooking oil to seal the colour in and remove the uncoloured anodised film. The sheet size is nominally 300mm x 300mm and 0.5mm gauge.

## Low-cost power tools

Many colleagues have been frustrated in attempts to order low-cost power tools from superstores. Teaching Resources has therefore sourced a range of high quality products that can be passed on to schools at less than comparable retail prices. Please telephone Teaching Resources for further details.



← TEP Plane Factory



▲ Fast Seeds



▲ FerroFluid's reaction with a magnet



▼ Instant Colour Aluminium



Low-cost Power tools

If you have not yet received a catalogue or for further details of other products please contact:

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