

STUDENT SHOWCASE

Materials (Hard)

Butcher's block

Jewellery storage cabinet

Corner shelf unit

Jewellery collection

Folding skateboard

Kitchen unit with
butcher's block

Wind chimes

Freestanding tennis net

Outdoor shower

Graphic design desk

Strip-built racing kayak

Anniversary bookmark

Water polo goals

Pack, pedal and park

Jigsaw puzzles

Laminated Coffee-table

Safe play

Mini engineers group

Shoe rack

Baby cot

Photo album

Elevated clothing rack

Water-powered generator

Chopper motorcycle

Personalised pen

Cell-phone holder

Water sports rack

Street luge

70s chopper-style bike

Candle holder

Jubilee clock

Taxidermy Stand

Concrete samples

Spanner holder

Kiwiana timepiece

Disability 'grabber'

Non-ice curling stone

Mosaic table and seat

Differential gauge

Mini-golf putting green

Wind generator

Possum plucker

4WD bike bracket

School seating

Graphic design desk

Jordan Smith

*Mount Maunganui College**Year 13 Materials Technology: full
year project**Teachers: Graham Skudder and
Jean Wallace*

For his main Year 13 project, Jordan selected his sister Jessie as his client. Jessie enjoys art and crafts and has a keen interest in graphics,

which she was taking as a subject at school. Her desk was too small and difficult to work at, so Jordan offered to design and construct a new one.

Jessie's specifications were exact – she needed a large flat working surface, adjustable platform, flexible light source, lots of storage capacity, and if possible a light box that she could use for tracing. It also had to fit in with her bedroom surroundings, be of "unique and original design", well made, practical and functional.

Having his younger sister as a client ensured that Jordan was never struggling for constructive feedback. This started in earnest with Jessie's frank assessment of the positive and negative attributes of the range of existing products that Jordan researched and the concepts he developed for her consideration. The final design was one that Jessie was sure would meet her needs and that Jordan was confident would be functional, visually appealing and structurally stable but, equally importantly, "able to be made to a high degree of workmanship in the time I had available".

The degree of adjustability required and the space which the desk would occupy in the bedroom meant a maximum size of 1500mm x 700mm, with a height of 750mm when the adjustable surface was flat. The metal frame was to be painted and the woodwork either painted or veneered. The main working surface was to be made of three layers – a thin sheet of steel set into an MDF layer, with a self healing mat laid on top. "This would allow for paper to be held magnetically when the working surface was raised for graphics work, eliminating the need for the clips which are usually used on graphics boards," Jordan says.

A smaller extra working surface was also to be made from MDF with a piece of Perspex set flush into it. This would enable that surface to double as a light box. There would be four drawers made of thin MDF – three running on metal rollers and a fourth being a false drawer housing the light box. "The extra light was to be held on by a special bracket made out of channel bar that fitted over the rail at the back".

The construction phase involved extensive consultation, trialling and testing as Jordan sought advice on the range of techniques required and worked out which best suited his ability and needs.

In building the metal frame he had to decide between MIG and TIG welding. "The MIG welder was quick and I'd used it a lot in the past, however the steel I was using was thin and I had to be careful not to burn a hole through it. The TIG welder is much more sensitive and can weld thin steel together without damage – but I hadn't used one before."

Using the TIG welder successfully improved the overall finish of the final product. "The TIG welder leaves nice welds so not much grinding was required. This meant I



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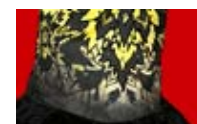
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was able to use a sanding disc on the grinder, which was much gentler on the work and gave a much nicer finish," he says.

The finish and durability was also enhanced by spray painting – black for the frame and a neutral white for the woodwork.

Jordan was confident that the final product had met all of his sister's specifications in terms of size limitations, visual appeal, structural stability and level of workmanship required. "The self healing mat and the metal sheet do their job very well. The extension bars that raise the angle of the main table to work extremely well and I'm pleased with the way they've come out. All three drawers function as intended and the false drawer serves its purpose of hiding the bulb in the light box from view."

And what did the client think of the final product?

"Jessie was extremely pleased with the way the desk turned out," says Jordan. "She particularly likes the way the main surface can be angled up – this brings her work closer to her and also allows her to use the set square up against the straight edge that is normally inaccessible when the desk is down flat."

Other features that went down well were the storage capacity in the drawers and the way the extra light slides across the desk ensuring good light wherever she is working on the desk. "In terms of functionality, this desk operates very well," says Jordan.



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