Scorpio Technology NEWSLETTER

INSIDE THIS ISSUE

TEACHER CONFERENCES & WORKSHOPS

Scorpio is attending or supports these Design & Technology teacher activities:

DATTA AUSTRALIA – 11-17/10/2021 Design & Technologies Week Theme: "*Developing Creative Problem Solvers*"
iTE – 24-26/12/2021 Technology Education Conference, Sydney
DATTA VIC – 2-3/12/2021 Conference "*Preferred Futures*" and Makerspace

WELCOME

The newest information and inspiration from Scorpio is here!

We're here to support you, however we can. Contact us at (03) 9802 9913 or email us at sales@scorpiotechnology.com.au

PRIMARY STEM: CATAPULTS

Not only History comes alive with these model catapults. Use catapults in STEM by looking at concepts such as gravity, energy, and design. Students investigate the structure and then make their own model using the knowledge they have gained.

Even today, catapults can be used to launch airplanes from aircraft carriers. The Electromagnetic Aircraft Launch System (EMALS). uses sleds that electromagnetically push and pull the catapult until the craft is airborne

Roman Onager Wooden Kit
(Code: SW6732)
Recreate the torsion-powered siege engine used by the Roman army during the late Roman Empire.
The model uses a sling bucket to launch small clay balls (included) and other soft projectiles over 4.5m!
Model size 40cm long x 28 cm high.

Roman Catapult Wooden Kit
(Code: SW6731
The catapult was invented over 2000 years ago by the Greeks. The Romans improved the design by adding torion springs. This model demonstrates a common catapult style of the Roman timEmpire. It re-creates the way in which tension powered siege engines worked and can fire the small clay balls (included) and other soft projectiles over 4.5 m!

Q. What is the difference between a model and a prototype?

A. A **model** is made to represent the concept. It is not to scale and does not function. A **prototype** is a functioning form of the product. It can be made of materials that are on hand and serves to test out the design. Car manufacturers make many prototypes to test future design, air flow efficiency and styling.

LEARN TO MAKE, MAKE TO LEARN

"Problems are not stop signs, they are guidelines".
Robert H. Schuller, Motivational speaker, and author

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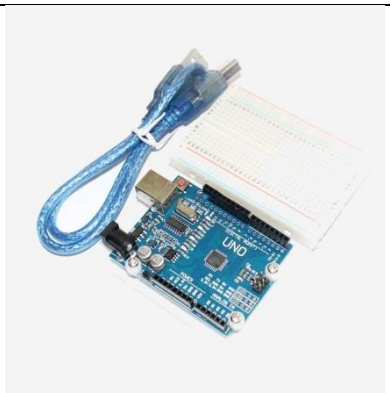
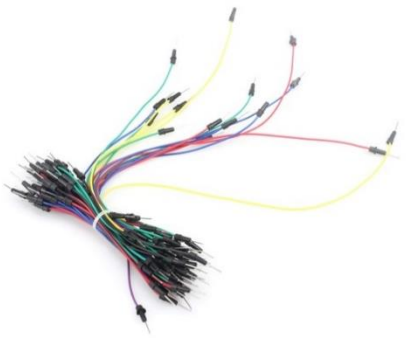
PRODUCTS:

Swivel Castor Wheels - 25mm dia.
Code: WSWIVEL
High loading capacity and durability swivel castor wheels with plain bearings, suitable for projects similar to BUGGY kit, etc. Load capacity: 10kg, Load height: 35mm, Plate size: 38 x 33mm, Bolt holes: 4mm.



Universal Experimental Platform With Uno R3, 400 Tie Point Breadboard & Acrylic Board
Code: UNOR3BRBRD400
Kit includes:
1 x UNO R3, 1 x Cable, 1 x 400 Tie Point Breadboard, 1 x Transparent Acrylic Substrate (base), 4 x Nuts, 4 x Screws
4 x Silicone pads



65 Piece Jumper Cables - Male To Male
Code: WIREJU65MM

- 65Pcs Mixed Color Male to Male Solderless Flexible Breadboard Jump Cable Wires.
- Useful in a multitude of Arduino projects.
- No soldering required.
- Length: 11cm - 24cm

Buzzer - Lilypad Module
Code: BUZZERLPM
This is a small buzzer for the LilyPad system. Use 2 I/O pins on the LilyPad main board and create different noises based on the different frequency of I/O toggling. Loud enough to hear inside a pocket but not obtrusively loud. This is an inductive buzzer meaning that is will act as a short to ground if you are not actively driving it. 20mm outer diameter. PCB thickness: 0.8mm
These buzzers are NOT WASHABLE. Washing these buzzers will damage them.

Ring And Disc
Code: RNGPL
A simple tool to demonstrate rotational inertia to students. The steel ring and wooden disc are of identical diameter and identical mass. Their inertia is the same, but not their rotational inertia, due to the fact that the mass is distributed differently in each of the two objects. Conduct experiments.

Diameter of each object: 106mm
Width of each object: 18mm

Variable Inertia Set
Code: AR1030548
Study rotational inertia with this well-conceived lab. Quickly change the distribution of mass by loading balls in compartments inside two plastic discs. Which is faster - the disc with the mass toward the center or toward the rim? Why? Includes two 11cm diameter plastic discs with eight compartments for holding balls.

Includes 8 x 19mm solid steel balls.

Stay tuned! There's a lot more exciting stuff coming up.
Click on link: https://www.scorpiotechnology.com.au/catalogues

SECONDARY:

This Month's Q&A Technology Tips: Switches

A switch is an electrical component that is used to break an electrical circuit. The switch is used to turn on/off the flow of electricity. The **types** of **switches** are classified into four **types:**

- SPST (Single Pole Single throw)
- SPDT (single pole double throw)
- DPST (double pole, single throw)
- DPDT (double pole double throw)

The most styles common are below. (NB: There are special switches suited to electronics which aren't covered here).

<table>
<tr>
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<td>SLIDE SWITCH
The knob slides back and forth to open and close the current flow in a circuit.
Uses: Mostly used in small projects.</td>
<td>TOGGLE SWITCH
Lever flips up or down to open or close the contacts. Works as an On and Off switch.
Uses: Found in commercial and household appliances and light control switches.</td>
<td>ROCKER SWITCH
Pressing one side of the switch down closes the contact. When the other side pressed the contact is opened.
Uses: Surge protectors, display monitors, computer power supplies, and many other devices and applications.</td>
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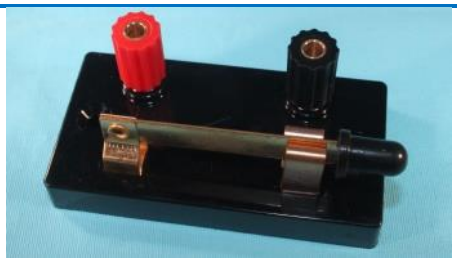
<td>  </td>
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<tr>
<td>PUSH BUTTON SWITCH
Pushing the knob makes the circuit connect when pressed and breaks when released. Can be powered either by momentary or latching action.
Uses: Light switches</td>
<td>KNIFE SWITCH
A lever (knife) is lifted from or inserted into a slot to control the flow of electricity in a circuit. Lifting the knife disconnects the circuit.
Uses: Master switch, classroom experiments so the position of the switch is visible.</td>
<td>ROTARY SWITCH
A knob is turned to open and close the contacts in the circuit.
Uses: Switch on a tabletop lamp, multi-speed fan, dimmer switch.</td>
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NEW PRODUCT: **Tactile push button switch (**Code: SWPUBUTTAC**)**

Click on link: https://www.scorpiotechnology.com.au/electrical-components

AUSTRALIAN MODERNIST DESIGNER - Frederick (Fred) Ward (1900–1990)

Article written by Anita Vejins

"There is a breathing simplicity in his work that is coupled with a creative inventiveness."

"Robin Boyd, 1952,
(1919-1971)

Australian architect, writer, teacher and social commentator

Australia has a history of pioneering design in areas of Technology, Medicine and Research. The furniture industry has its own pioneer and acknowledged icon of modernist design in Australia –Fred Ward.

Fred Ward was a pioneering Australian furniture and interior designer whose vision was to enhance our lives by creating furniture that had good design, was streamlined, functional, innovative and ergonomic. He chose Australian timbers such as Blackwood, Fiddle Back, Myrtle, Coach Wood, and White Gum, seeking to highlight their grain and colour rather than using stains as was popular in European furniture.

THE DESIGNER

Fred Ward is regarded as a major figure in the history of Australian design. He trained as an artist at the National Gallery Of Victoria. He then worked as a freelance illustrator and cartoonist for various newspapers.

He started to design furniture for his new home in 1929. Friends began buying his pieces and so his furniture design career took off. He improved his designs by visiting antique shops and attending technical drawing classes. He had a desire to create furniture that was elegant and ergonomic long before other furniture designers.

INSPIRATION

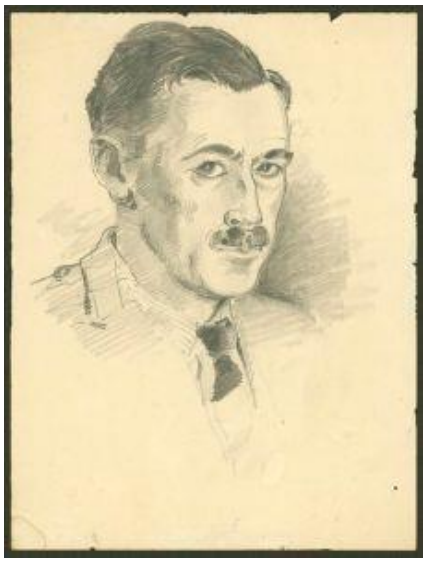
Ward admired the Georgian style, American colonial and the Arts and Crafts movement which focused on function. He was influenced by by European modernism with a focus on geometry, asymmetry and negative space.

Ward mainly used native Australian timbers which were finished with a natural wax finish to highlight their grain and colours.

ACHIEVEMENTS

The war and post-war period brought with it material and labour shortages. People needed to decorate their homes with affordible, functional, and versatile furniture. His furniture was well designed, comfortable and affordable and suited customer requirements.

The retailer, Myer Emporium Ltd, sold Ward's furniture. It was also displayed in boutique galleries and included in several leading exhibitions. This demonstrates that his work catered for different sectors of the furniture market.

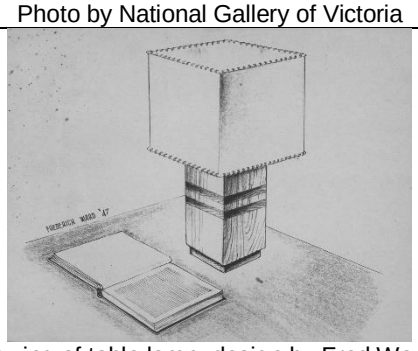


Portrait, pencil on paper, Fred Ward, Australia, 1947 – photo by Museum of Applied Arts and Sciences

Ward's use of unstained native Australian timbers and focus on function provided a unique Australian character. By using commonly available machining techniques he kept the pieces simple but elegant and economical to manufacture. In spite of this, his furniture designs were designed for user comfort.

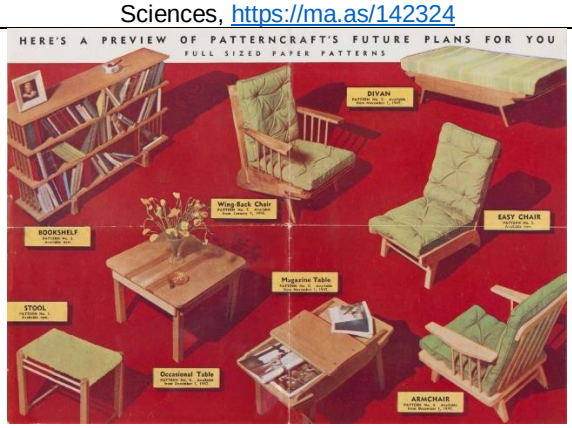
Cabinet, Fred Ward, c.1935
Photo by National Gallery of Victoria

Nest Of Three Myrtle Tables, Fred Ward, c. 1930s, 52h X 41w X 29d
https://www.invaluable.com/auction-lot/fred-ward-nest-of-three-tables-125-c-2d44f32948#



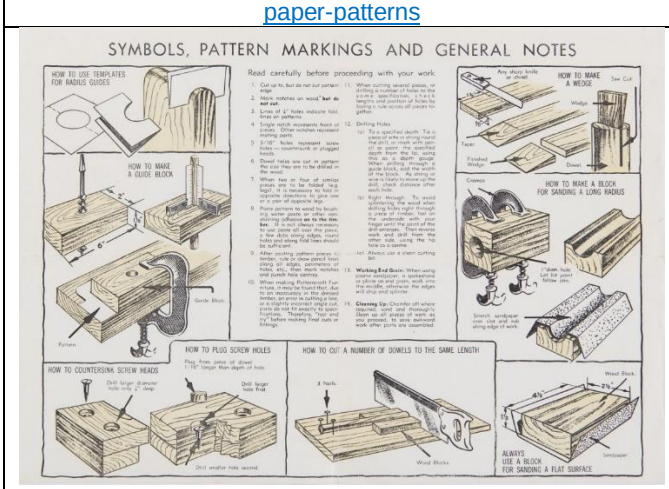
Design drawing of table lamp, design by Fred Ward for Myer Emporium, Melbourne, 1947 Museum of Applied Arts & Sciences, https://ma.as/142324

Fred Ward's *Blueprint coffee table* c.1950
private collection. *Credit:Ben Wrigley*

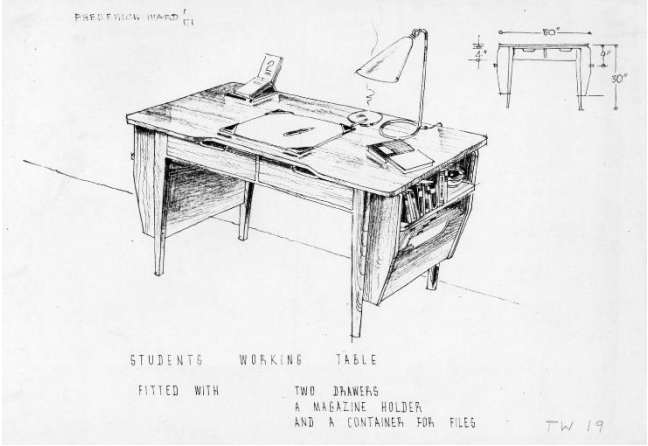


Patterncraft do it yourself furniture, 1947
https://sydneylivingmuseums.com.au/exhibitions/furniture-paper-patterns

Patterncraft armchairs, Fred Ward, 1947



Assembly instructions for "Patterncraft" furniture
https://sydneylivingmuseums.com.au/exhibitions/furniture-paper-patterns



Drawing of student's working table for University House, Australian National University, Fred Ward, 1951
https://archives.anu.edu.au/exhibitions/art-archives/fred-ward

TIMELINE

1929	Began designing furniture for his new home in Melbourne.
1931	Sold his first design to the Myer Emporium (a chair and bedside table ensemble). Worked for Myer Emporium until 1940 when he left to join the Air Force in World War 2.
1932	Established a shop and interior-design consultancy in Melbourne.
1933	Exhibited his furniture for the Arts And Crafts Society Of Victoria and, in 1933, for the exhibition of British Contemporary Art in Melbourne.
1934	At the first Building Industry Congress of Victoria's Centenary Ideal Homes exhibition he launched his 'unit range' of furniture for Myer. A modular system of individual pieces that could be reconfigured for varied uses in different rooms. His modular, affordable designs for Myer were popular during the Depression.
1942	Ward assisted the Department of Aircraft Production to design and manufacture the timber-framed Mosquito bomber at Fishermens Bend.
Late 1940s	Created the DIY Patterncraft furniture patterns which were available by mail order from Australian Home Beautiful. By following the patterns and using only basic skills and materials, Australians could make affordable and stylish furniture for a minimum cost.
1949-52	Lectured part time in interior architecture, Faculty Of Architecture, at the University of Melbourne.
1948	Helped to establish the Society of Designers for Industry (later Industrial Design Institute of Australia).
1952	Won the competition to design the furnishing and funishings of University House, Australian National University (ANU). Moves to Canberra to supervise the work.
1954-61	Appointed as the ANU designer.
1958	Helped to establish the Industrial Design Council of Australia.
1961	Retired from ANU. Continued working privately. Among his clients were the Reserve Bank of Australia, Australian embassies, Admiralty House, Sydney and the National Library of Australia. Australian architect Robin Boyd also commissioned some pieces from Ward.
1964	Received inaugural Essington Lewis award from the Industrial Design Council of Australia.
1967	Designed the furniture for the Australian pavilion at Expo '67, Montreal, Canada.
1970	Appointed MBE for his contributions to industrial design.
1990	He was practically forgotten at the time of his death in 1990. Many of his designs have been lost. His work now receives interest among collectors and the general public.
2015	More than 2,300 pieces of Fred Ward-designed furniture are still at University House. Some of these pieces require refurbishment. The School of Art students can access certain pieces to investigate dovetail joints, tongue and groove and butter box joints allowing them to learn how Fred Ward designed his furniture.

REFERENCES

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DID YOU KNOW?

Australia withdrew the circulation of 1 and 2 cent coins in 1992. These "copper" coins were actually made from bronze. The coins were collected and were melted down so that the metal could be reused. All of the bronze medals awarded in the 2000 Sydney Olympics of were made of recycled 1 and 2 cent coins.