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SCOTCH COLLEGE ENVIRONMENT MANAGEMENT NEWSLETTER

New solar panels on Centre for Science roof

It may not be visible from down below in Morrison Street, but there's plenty happening up on the roof of Scotch's magnificent Sir Zelman Cowen Centre for Science.

When the former Senior Science Building was demolished last December, the solar panels from the roof were salvaged. The plan was for the panels to be reinstalled on the Centre for Science roof. However the panels were found to be outdated and unsuitable for reuse, so new panels have now been fixed to the north-facing (Morrison Street) roof. Flat photovoltaic panels and a horizontal axis wind turbine are also fitted to other parts of the roof, and the panels and turbine are capable of sending between 12 and 18 kilowatts per day to the electricity grid, depending on weather conditions and sunlight hours.

Separately from the solar panels, glass solar tubes for heating water are also in place on the Centre for Science's north-facing roof, helping to supplement the gas hot water system which supplies the domestic hot water in the building.

ABOVE: COLIN DANIEL FROM SCOTCH'S MAINTENANCE DEPARTMENT AT WORK ON THE CENTRE FOR SCIENCE ROOF

In this edition

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EDITORIAL: DAVID ASHTON
DESIGN: LISA SHEARD

Scotch College
www.scotch.vic.edu.au

The Centre for Science is a showcase area for environmental sustainability. As well as the solar and voltaic panels and wind turbines reducing power load and energy consumption, rainwater harvesting is reducing the building's consumption of potable water. The harvested rainwater is used on the rooftop garden beds and hothouse, and in the potting shed.

The boys use the green roof in biology and other classes. As well as the panels and turbine, features include an atrium skylight for natural light, and a weather station displaying solar, wind and rain data.

TOP: PHOTOVOLTAIC PANELS ON THE CENTRE FOR SCIENCE ROOF
BOTTOM: SOLAR PANELS FACING MORRISON STREET

Year 3 boys get right into the spirit of Schools' Tree Day

ABOVE: YEAR 3 BOYS PLANTING NATIVE GRASSES AT ELLIOTT LODGE, HEALESVILLE

Scotch's Year 3 boys participated enthusiastically in Planet Ark's Schools' Tree Day (Friday 27 July) by planting 100 clumps of a native grass, *tanika lomandra*, at Scotch's Elliott Lodge property at Healesville. Year 3 Coordinator Steve Grbac and Junior School Director of Studies, Brian Sampson, did the heavy work – and gained a few blisters – by digging the holes, and each boy planted at least two grass clumps.

Each year the Year 3 boys get into the spirit of Schools' Tree Day, along with girls and boys from around 3000 preschools, kindergartens, primary and high schools across Australia. The children have fun learning how to dig for the environment, and get their hands a little dirty while planting more than 470,000 native seedlings, trees, shrubs, edible plants and flowers.

The Healesville plantings have helped to beautify a vacant area in front of the Cherry Wilson Hut at Healesville, and as the teachers explained to the boys, the sturdy, drought-tolerant native grasses will help to hold the soil in place and provide a habitat for lizards and other small animals.

Tanika lomandra has shiny green strap leaves which are soft to the touch, and yellow flower spikes that emerge in spring. It's hoped that the local wallabies and wombats don't find the abundant leaf growth too much to their liking.

How it's grown!

Seven years after its installation, the rain garden on Scotch property at the end of nearby Hambledon Road is now replete with native grasses and shrubs, thriving on the nutrients from stormwater channelled into the garden from a large catchment of local streets and private properties.

The rain garden was constructed in 2011 as a partnership between Scotch and the City of Boroondara. It works like this: water entering the rain garden floods it to a depth of about 100mm. As this water slowly permeates through the layers of soil in the garden, pollutants such as nutrients, heavy metals and sediments are removed. The cleansed water is then channelled into stormwater drains, and on into the Yarra.

An attractive streetscape feature, the rain garden also has educational as well as ecological benefits: Scotch boys have the opportunity to learn about water cleaning and management issues involved in the rain garden's pollution-reducing process.

TOP: THE HAMBLEDON ROAD RAIN GARDEN AS IT NOW APPEARS
BOTTOM: THE RAIN GARDEN UNDER CONSTRUCTION IN 2011

Healthy Me, Healthy Planet

ABOVE: YEAR 3 BOYS IDENTIFYING THE ORIGIN OF FOODS COMMONLY BOUGHT IN AUSTRALIA

Scotch's Year 3 boys are studying how food is grown, in an incursion which teaches them plant biology, how to reduce, reuse and recycle, and how to minimise excessive food packaging.

It's all part of a 'Healthy Me, Healthy Planet' incursion. This consists of fun and engaging activities in which the boys are encouraged to choose foods that are both healthy and sustainable. The idea is to reinforce the principle of healthy eating, and also how the food choices we make have a long-term impact on the environment.

In the incursion, with the use of a map, the boys were shown how products we buy locally, and might assume are sourced from Australia, in fact come from overseas. They were encouraged to think about 'food miles' and the effects on the atmosphere of pollution resulting from long-distance food transportation.

Meanwhile, more vegetable planter boxes have been added to the 15 outside the Year 3 classrooms. Up on the Hill, 10 boxes filled with thriving crops have now been set up in a north-facing area near the car port in the boarding house precinct. In a peer support gardening exercise, each of the four Junior School Houses takes a turn at planting the seedlings, watering and weeding, and then harvesting the crop in the Boarding House precinct.

The longer-established planter boxes near the Year 3 classrooms are now full of a healthy crop of broad beans, broccoli, silver beet, purple cauliflower, bok choy, companion plants and various herbs.

As spring arrives, the plants are showing strong growth, boosted by generous amounts of worm juice produced in Mrs Gillian Comport's classroom nearby. Having done the work to bring the vegetables to maturity, the boys are harvesting the fruits of their labour and taking them home to eat and enjoy.

TOP RIGHT AND AVOVE: BOYS TENDING THE PLANTS IN THE BOARDING HOUSE PRECINCT

Scotch enlists for battle in a crucial war

RIGHT: ELLIOT GREEN IN THE STAFF COMMON ROOM WITH THE WASTE BINS

The ABCTV series War on Waste has focused our minds on what we as a nation and as individuals are doing about waste. As the series has pointed out, decades ago Australians were among the world's best in dealing with waste, as we pioneered many recycling programs, especially those involving paper. But recently there has been a surge in the volume of waste we produce, and plenty of discussion about its final destination.

At the local level, Scotch recycles its paper and cardboard quite effectively. But general waste – material going directly to landfill – makes up by far the largest volume of waste the School produces, and Scotch wants to reduce this volume significantly.

Scotch is fully aware that it is time to draw a line in the sand when it comes to environmental management, and it has engaged an external recycling and waste management consultant to review its current waste practices. The review will cover the Senior School, the Junior School and the boarding houses, and will later be extended to Scotch's properties at Cowes and Healesville.

While the review proceeds, the School is taking action with a trial in the Lithgow Centre's Staff Common Room. On 27 August, brightly coloured waste bins were placed in the common room, one coloured red (for landfill items such as broken glass, food scraps and plastic bags) and the other coloured yellow (for recyclable items such as glass containers, aluminium and steel cans).

If the trial is successful, similar bins will be periodically rolled out across the Scotch campus. Success will depend on gaining the staff's, and then the boys', awareness of and commitment to the project. The School anticipates that more opportunities to decrease the amount of waste going to landfill and increase the proportion of recyclable material will be identified during the review of Scotch's waste practices.

In addition, Scotch is considering becoming a member of the Sports Environment Alliance, which works with institutions such as the MCG, local councils and sports clubs in devising innovative and effective ways of limiting environmental impact. For example, at the MCG, considerable volumes of food waste are being converted to compost and used to nurture plants in Yarra Park.

Scotch's Facilities Officer, Elliot Green, who is supervising the Lithgow Centre trial, said there was a great opportunity at Scotch for more effective separation of general waste from recyclable waste. 'We naturally recycle our paper and cardboard well,' he said. 'I'm sure we can appreciate the great opportunity we are presented with to improve in other areas, and work towards a greener combined waste and recycling management strategy.'

Paper cups and the environment

It's estimated that in the USA, 60 billion paper cups end up in landfill every year because they can't easily be recycled. Australians and New Zealanders, too, seem to have an insatiable appetite for paper cups (or their contents, at least) – we use about 1.2 billion paper cups every year, and many of these also go to landfill.

An innocent-looking paper cup can be an environmental pariah. This is because paper cups are often lined or coated with a polyethylene (PE) or wax substance to prevent liquid from soaking through the paper. This helps to keep the cup from disintegrating readily, but for that reason PE-lined paper cups in landfill can take about 20 years to break down.

But now a material known as polylactic acid (PLA) has been devised, which is derived from renewable resources such as sugar cane or corn starch. When PLA is used for cup linings instead of non-renewable petroleum-based resources, cups of this type can be certified commercially compostable.

If all of the 1.2 billion paper cups used in Australia and New Zealand each year were converted from PE to PLA linings, about 948 tonnes of CO_2 emissions, or 669,000 litres of fuel, would be saved.

Scotch is doing its bit to convert to recyclable paper cups. At present, Scotch uses about 110,000 paper cups every year, and the School's catering firm, Chartwell's, is progressively introducing PLA-lined BioCups in all its operations at Scotch. This includes the tuckshop, the boarding house dining hall, the staff common room and school, Scotch College Foundation and Old Scotch Collegians' Association functions.

The BioCups now being introduced and their bioplastic lids are certified commercially compostable and are carbon neutral. They are an interim option: in response to the School's suggestions and community expectations, Chartwell's is currently converting all its packaging to environmentally-friendly materials. In particular, biodegradable packaging will be used for all food sold in the Scotch tuckshop.

As well, KeepCups, which are an environmentally-friendly alternative to paper cups, are available to boys and staff in the tuckshop. When users buy the cups they initially receive a free coffee in their KeepCup, and subsequent purchases using KeepCups are discounted. The cups can be used over and over again.

Paper cup facts:

- 60 billion paper cups go to landfill each year in the USA
- 1.2 billion paper cups are used in Australia and New Zealand each year; most go to landfill
- Paper cups are often lined with polyethylene, meaning they cannot be recycled
- If all 1.2 billion cups used in Australia and New Zealand annually were lined with polylactic acid (PLA), they could be certified commercially compostable
- This would save around 948 tonnes of CO_2 annually
- Scotch uses about 110,000 paper cups annually
- The School is progressively introducing PLA-lined cups in all its operations