

A Taste of Science

Dr Jennifer Pearson and Elaine Lewis

The science fair *"was awesome!!! ... I really like science now"* (said an 8 year old boy)

... and his mum said *"he isn't free with superlatives"*!

Introduction

A Taste of Science was a three hour science fair which allowed the general public to come together to learn about the science of bush plants. The event was held at the Canning Eco River Education Centre (CREEC), located on the Canning River in Wilson. The planning, implementation and evaluation of the fair was achieved through a successful partnership between National Science Week, the Australian Association for Environmental Education – Western Australian A Chapter (AAEE-WA), City of Canning, CREEC and the South East Regional Centre for Urban Landcare (SERCUL).

AAEE-WA was awarded a Seed Grant to conduct *A Taste of Science* community fair as part of National Science Week 2009. This funding was supplemented by funding and in-kind support from all the other major partners. Numerous other smaller sponsors supported the fair as well.

The fair was conducted during National Science Week, on Sunday 16th August 2009, 11am-2pm. Approximately 300 people attended, representing a wide cross section of the community. Furthermore, 70% of the fair attendees who completed feedback forms had not previously attended any National Science Week events.

Project Purpose

The overarching aim of the science fair was to showcase modern science and Indigenous cultural knowledge in the context of botanical and soil science, bush foods, medicines, bush crafts and storytelling. This incorporated:

- Providing an opportunity for the general public to participate in a new event that showcased science, technology and innovation. Highlighting modern science's explorations and concerns as interesting, challenging, important, and of direct relevance to daily life, the well being of society and environmentally sustainable growth of our economy.
- Fostering awareness and utilization of Indigenous ethnobotanical knowledge about native plants and care of the natural bush environment.
- Fostering partnerships between the community, education/research organizations, local and state government, business and industry.

A Taste of Science Program

The fair commenced with a 'welcome to country' conducted by Noongar elder, Richard Wilkes; followed by the official opening

by the City of Canning Mayor, Joe Delle Donne JP; then a brief presentation about the purpose of the event by the AAEE-WA Convenor, Dr Jennifer Pearson.



Photo 1: Noongar elder, Richard Wilkes, presenting the 'Welcome to Country'.

Participants engaged in a range of hands-on interactive experiences. The activities included: microscope exploration of soil, river water and botany samples; modern and Indigenous perspectives on fire management in bush environments; guided professional assistance to plant selection for soil type of home gardens; making herbal hand cream products incorporating ingredients from bush plants; weaving native reeds; traditional Indigenous storytelling to pass on knowledge; Indigenous rock art; various bush crafts; creating environmental installations with clay; tasting kangaroo tail soup; grinding seed for simple bread production and tasting; eco face painting; eco badge making; and viewing eco web sites.



Photo 2: Some of the science activity stalls.

Numerous displays were also a feature of the event, for example, Perth Urban Bushland Fungi, Bush Fire Management, Wild Ways Conservation Art and Junk Busters recycling group. Various give-aways were also a feature of the event. Native plants, stickers, bookmarks and other activities for children were available for free.

To complement the activities and displays there were formal

talks. Leonard Thorn, Indigenous Eco Education Officer, engaged the audience with Indigenous technology and stories. These sessions suggested how to use this knowledge to live well in a changing climate. Birds Australia representatives also presented an informative talk about bird species to be found along the Canning River system.

Outcomes

Three key outcomes of *A Taste of Science* may be identified: Development of an innovative model, improved awareness of Indigenous ethno-botanical knowledge, the enhancement of community partnerships for the promotion of science.

An innovative model for integrating modern science and Indigenous knowledge was trialed and evaluated. Conducting the event provided an opportunity for the general public to participate in a new event that showcased science, technology and innovation. It highlighted modern science's explorations as interesting, challenging and important to daily life, the well being of society and environmentally sustainable growth. Evidence indicating increased community understanding of the vital role of modern science in exploring and addressing landcare issues related to bush plants in a changing climate was observed through participant's questions to presenters, reactions to displays and feedback forms. For example, feedback form respondents stated they enjoyed "*all the children's activities – so interesting*", "*frogs*", "*the microscopic macroinvertebrate display*", "*bird talk*" and "*everything*". In brief, respondents expressed enhanced science appreciation.



Photo 3: Macroinvertebrate and microscope viewing room.

Another component of the innovative model was the incorporation of wastewise measures. The National Science Week feedback forms were printed on the back of the program form so that only one page had to be printed, with forms to be returned with feedback data so the page didn't become rubbish. Keep Australia Beautiful supplied bins for the event, all clearly labelled for different types of waste. Other strategies were also employed to minimise waste, for example, washable/returnable plastic cups for drinks/soup. At the end of the event the waste was weighed. Only 5.6 kg of rubbish and 4.3 kg of recyclables were generated by the event. Clearly, organisers sought to 'walk the talk' in terms of waste management.



Photo 4: The science fair was a wastewise event.

Improved community awareness of Indigenous ethno-botanical knowledge was achieved. Young and not so young were entranced by the cultural knowledge and associated stories. Evidence indicating improved awareness and appreciation of Indigenous knowledge about bush plants and care of the environment was documented on feedback forms following Indigenous presentations. For example, respondents indicated they enjoyed "*weaving and storytelling – Leonard rocks!*", "*bush crafts*", "*teamwork with Aboriginal people*" and "*Leonard – indigenous uses of plants, etc.*" Clearly, participants expressed improved awareness of Indigenous ethno-botanical understandings.



Photo 5: Indigenous Eco Education Officer, Leonard Thorn, sharing his ethno-botanical knowledge.

The third major outcome of the science fair was the enhancement of existing partnerships and the establishment of new partnerships for the promotion of science. The development of a model of collaboration was based on the successful model used by AEE-WA in organizing the annual *Catchment, Corridors and Coasts* 3 day program in January each year (AEE-WA, 2009). Partnerships not only developed between the main organizing bodies – National Science Week, AEE-WA, City of Canning, CREC and SERCUL – but with many other groups as well. These included Education and the Centre for Indigenous Australian Knowledge at Kurongkurl Katitjin, Edith Cowan University; Scitech; Department for Environment and Conservation; Swan River Trust; Murdoch University; Australian Geographic; Perth Zoo; Keep Australia Beautiful; and numerous volunteer groups, such as Birds Australia and the Canning River Regional Park Volunteers.

A wide variety of strategies were utilized to promote the event. These ranged from the distribution of leaflets through the CREEC, SERCUL, local schools and libraries; advertisements and publicity in local newspapers; and internet science and education websites and newsletters. Another promotional strategy employed was a logo competition, inviting children to create a logo for the science fair. Eighty four entries were received. This not only promoted the event but also engaged children in investigating native plants and animals found in the Canning River environment.

Photo 6: AAEE-WA Convenor, Dr Jennifer Pearson, presenting the winning logo entry.



Conclusion

The *Taste of Science* community fair was effective in promoting science to all age groups in the community. As one feedback form respondent stated, "I enjoyed ALL of it...Mother Nature"! Evidence was obtained that indicated the model for incorporating modern science and Indigenous knowledge was successful. Evidence also showed enthusiastic engagement in science activities was achieved, improved awareness of Indigenous ethno-botanical knowledge, and the enhancement of community partnerships for the promotion of science. In conclusion, *A Taste of Science*, set in the river ecosystem environment, provided engaging hands-on activities that resulted in a rich and enjoyable learning experience which enhanced science appreciation.

Special thanks to the other 'A Taste of Science' team members, Tanya Porter from CREEC and Amy Krupa from SERCUL, to our many volunteers and the fair patrons.

References

- AAEE-WA (2009). *Catchments, Corridors and Coasts: Evaluation*. Australian Association for Environmental Education (WA Chapter), P.O. Box 1007, Fremantle WA 6959.

Junior Primary Space Lesson

Geoff Swan (Edith Cowan University) and Suzanne Swan (Beaumaris Primary School)

In June, 2009, a space lesson was given to a split grade 1/2 class, followed by two pre-primary classes at Beaumaris Primary School as part of their space topic for term 2. The lesson built upon a space presentation and hands-on telescope demonstration given to pre-primary classes at Mullaloo Beach Primary School the previous year and aimed to consolidate and extend student's knowledge of the solar system, humans in space, and telescopes.

The timing was fortuitous with the May shuttle upgrade to the Hubble Telescope having just occurred, the 40th anniversary of the moon landing in July imminent, and of course we were in the middle of the 2009 International Year of Astronomy. Many students had heard of the Hubble telescope and moon landings through the media.

Each lesson took about 50 minutes and consisted of a 25 minute presentation, 20 minutes of activities and a 5 minute wrap up at the end. For the activities, the class was split into two equal groups with the outside group swapping with the inside group half way through. Each activity group needed a teacher or assistant to facilitate the activities.

The lesson started with an interactive powerpoint presentation using a smartboard. Photos and short video clips that included the moon, planets, rockets, space station and telescopes initiated the class discussion and allowed us to consolidate and extend knowledge of the solar system, explore ideas of motion, weightlessness, and some optics at the end. Students in both classes were able to name the planets in the solar system, recognise Neil Armstrong as the first person on the moon and even pick out two moons of Jupiter

from a photo. They saw rockets in action lifting the space shuttle into orbit, and they were very interested in how astronauts lived and performed everyday functions in space. The class was then split into two activity groups.

The outside group looked through a (fairly inexpensive) refracting telescope and binoculars. Both the telescope and binoculars were focussed on a sign about 25 metres away. Students lined up and took turns looking first through the telescope and then through the binoculars. Most students had never looked through a telescope or binoculars before. Next time we might also include a quick rocket demonstration (using half an alka-seltzer tablet with water sealed in an old 35mm film container).

Using a class set of magnifying glasses (focal length ~ 20cm), students in the inside group easily produced clear, real, and inverted (upside down) images of outside by holding a sheet of paper at a distance of one focal length behind the magnifying glass and aiming at the classroom windows. This demonstrated how easily real images can be created with lenses and how focussing is just about adjusting the distance between the lens and the screen. Each student then received a dot to dot telescope activity to connect and colour in.

Photos and further information on this lesson for the split grade 1/2 class are on the class blog which can be accessed following the "TA 9" and then "space lesson" links from the Beaumaris Primary School community portal at <http://bpscommunity.com/blogs/>.