

Triple S (Science for School Students) Fairs



Description

Our Science Fairs provide a free hands-on science and technology experience to middle school students and their families, by holding an evening fair twice a year. The concept was born from the frustration of trying to provide university and career advice to year 12 students who had little knowledge of the range of scientific and technological disciplines, or their associated careers.

The collaborative Organising Committee is drawn from all five local universities, Scitech, the Science Teachers Association of WA and the Department of Education and Training WA. The universities provide an annual contribution of \$1775 each – about the cost of one large newspaper advertisement – and the other organisations provide support in kind.

Stallholders from public organisations join those from the institutions represented on the organising committee to provide around thirty-five different stalls covering a wide range of science disciplines. Hands-on activities and a chance to talk to real scientists and engineers are the drawcard. Prospective student recruitment and inter-organisational rivalry is minimal as the focus is on the science; to this end, all course information is collected together on a single table, out of the way of the main event. The task is to enthuse the young audience and their families about the range of science and technology that takes place in our community and its integral part in our future.

Fairs are held in high school gymnasias and open to the public. This concept has the advantage of providing:

- Free venues, presented throughout the metropolitan area
- Parking
- Ready assistance to set up
- Ownership by the local community
- A real life experience for catering students (stallholders are provided with afternoon tea and a light meal, for which we pay the school).

Visitors parade past the stalls stopping to talk to presenters and interact with activities that catch their attention. During the evening there are also a number of scheduled events that are group activities or staged science presentations, such as pouring tin ingots.

From before the official start at 5:30pm until the close at 8:30pm the fair is buzzing with activity. During the course of the evening between 400 and 600 or more members of the public will pass through, discovering for themselves the wide range of science and technology that contributes to our society, learning about possible careers, and linking classroom science and maths to real-world applications.

Objectives

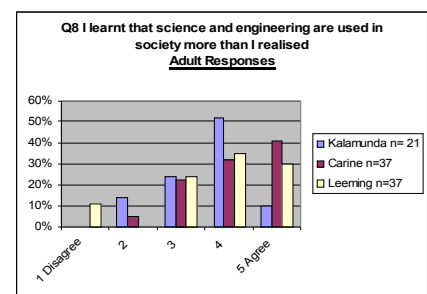
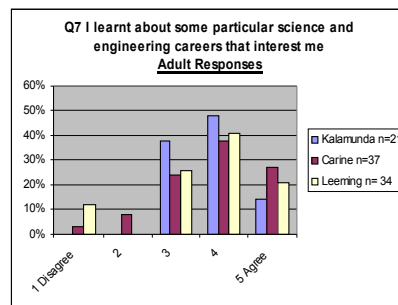
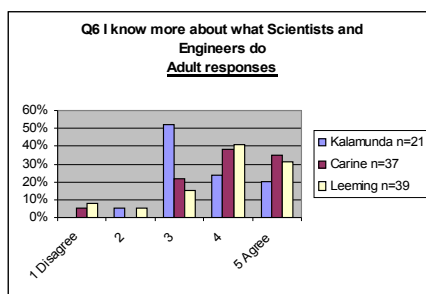
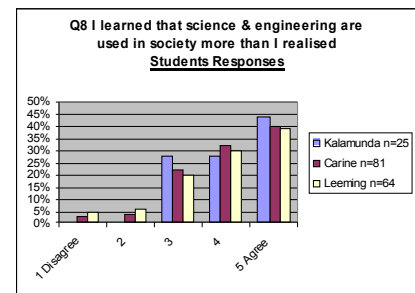
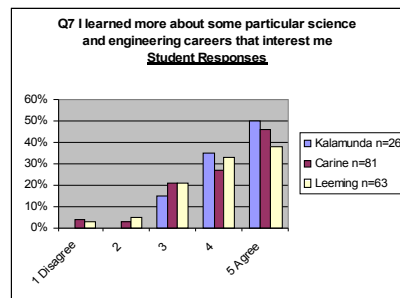
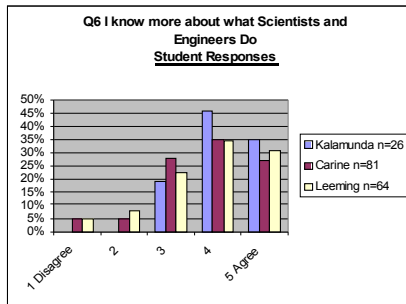
The key aims of the Triple S Fairs Organising Committee are to:

- Encourage students to keep their options open by choosing science and maths for upper school;
- Encourage students to seriously consider taking a science or engineering career pathway;
- Promote the concept of science being central to the successful functioning of society;
- Convey a clear outline of the scope and diversity of the work that is covered by the umbrella term of 'science';
- Excite students with "hands on" activities and mental challenges, thereby stimulating interest in the process and skills of science, as well as its content;
- Empower students with the knowledge that they may be able to make a difference in global issues;
- Provide practical examples of the careers people with science and engineering qualifications can expect.

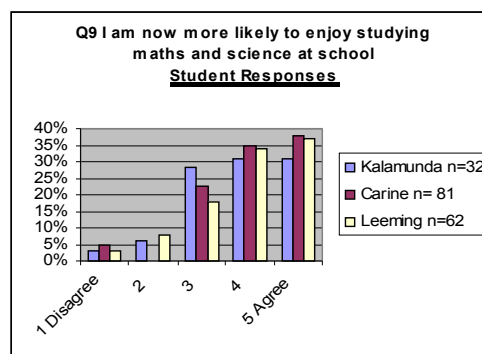
Results

Since our beginning in 1997, an estimated 10 000 plus people have visited the Triple S fairs. We survey participants and stallholders to assess the success of each event and – taking note of this feedback – have modified and refined our administration so as to provide quality fairs that communicate the joys of science and engineering, yet run on a very limited budget.

Students and adults alike report widespread positive changes in knowledge about science and engineering after attending a fair. The following results are aggregated from the last three fairs, where survey participants made up just under a quarter of the attendees*, and 80 – 90% of visitors say they would come again given the opportunity.



Students also report changes in attitude to studying science and maths.



Eighty to 95% of stallholders rate the experience highly, scoring 4 or 5 on a five point scale from very poor (1) to excellent (5), and we exceeded the expectations of more than a quarter. Organisation of the Fairs, both before and on the night, scored 4 or 5 from over 80% of stallholders on the same five point scale. Our stallholders keep coming back, enthusiastically refining their presentations to appeal to their likely audience.

The main aim of the fairs is to help students and the community understand the ongoing value of continued science studies in senior secondary school and beyond. The fairs are also able to increase the public's understanding of the contribution of scientific knowledge to their community, and enhance their ability to assimilate information on science and scientific issues in an informed and accurate manner. Our results indicate that we succeed in our mission.

Triple S (Science for School Students) Fairs as a science communication/promotion model



1. Impact and effectiveness

Although particularly targeted at middle school students, our fairs have a positive impact on all the students who attend and on their families. Our surveys tell us that visitors strongly agree that they learned about science and engineering, they learned something in particular that interests them and that science and engineering plays a bigger role in society than they realised. Less than 2% would not visit another fair if the opportunity arose.

The students respond that they are much more likely to enjoy studying science or maths as a result of the visit to the fair. Qualitative evidence for this in the short-term is shown above; statements from our assessors show that these positive results have been seen over the ten-year life of the fairs.

The stallholders, who include astronomers, aviators, biologists, computer experts, energy scientists, engineers, environmental scientists, geologists, human biologists, mathematicians, nurses, psychologists, sports scientists, zoologists, are very satisfied with their experience and keep coming back enthusiastically.

We know our concept works well as we have been organising successful fairs for ten years, and have a documented *Modus Operandi*. The concept has been borrowed and modified by Scitech to provide rural fairs involving local industry, government and educational institutions for the past 3 years. We are very keen to see students in other states able to attend and benefit from science fairs such as these. Our model is inexpensive, meets our objectives and is worthy of wider adoption. To this end we are making a presentation at the World Conference on Science & Technology Education World STE 2007 in Perth in July (<http://www.worldste2007.asn.au/>).

The motivation for applying for this award is to find the means to share this successful format with any group willing to undertake the organisation for free Science Fairs to be held in the community for school students.

2. Communication.

The Triple S fairs have raised the profile of science, engineering and technology in the most effective way possible: by allowing researchers and science workers to talk directly to students and their families. When people can have face-to-face communication with those who are intimately involved in the science, engineering or technology under discussion, trust is built in a way that cannot come from the one-way, edited communications of newspapers or the broadcast media.

There is, at present, a distrust of science and technology among the public at large, and it is the belief of the committee that this distrust comes from a lack of credible communication, led by the public themselves. It is our belief – borne out of experience – that the fairs provide a route for such credible communication and therefore help to build trust. It may be that some of our visitors leave our fair having had their negative preconceptions confirmed, but even they will still appreciate being given the chance to explore the issues on their own terms.

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preconceptions confirmed, but even they will still appreciate being given the chance to explore the issues on their own terms.

If a parent is sceptical about their child's wish to study science, or if a child is sceptical about the worth of a science career, or if the public is sceptical about new technologies, there is no more effective way to allay their fears and put them at ease than to talk to them. Real scientists talking to real parents and real students; real people talking to real people. There can be no better model.

3. Inspiration

Visitors to each Fair are asked to complete survey forms, from which we are presented with a consistent pattern of positive responses. Typical of these (also possibly indicating a range of ages) in response to "What did you like best?" is grouped below:

- the solar car – awesome
- the enthusiasm that the whole concept created within my son
- the friendly informative way people talked about their subject
- the interesting automotive exhibit
- the robotics were really cool

These free Fairs are a great place for the whole family to explore different aspects of science and to share information that is normally at one remove. In addition, students from the host school and others who have been recognised by achieving awards have an opportunity to display their work and knowledge. Comment from the teacher of one such group reveals the value of this experience: *Note from a teacher: "Thank you for the invitation to attend and present. The boys gained so much by sharing their learned information with the general public."*

In this exciting, fascinating atmosphere there is an element of "demystifying" science so that the image of the white-coated "mad" scientist is eliminated and replaced by passionate people, eager to share their special knowledge with anyone interested enough to ask questions. Parents have the opportunity to talk easily with young people who may be coming to the end of their undergraduate years, who can advise from their own experience about the reality of the study required to achieve their qualifications, and the future they can expect from their work. Many parents have indicated their appreciation of this benefit.

We believe that much good can and does come from this direct connection between science practitioners and parents and students in a fun environment where exciting displays and activities are provided with enthusiasm and expertise by "real" people. Without the pressure of "selling" courses or universities, with exposure to actual science across a wide spectrum, those people giving their time do so with sincerity and dedication, which is readily conveyed to the young people whose scientific interest and ability we, as a nation, need to develop, along with their mothers and fathers, grandparents and siblings for broader scientific understanding. In addition, those scientists who volunteer their services enjoy the intervarsity collegiality and new information they themselves take from the event.

We believe that our Science Fair model can be an inspiration for others working with the ideal of conveying credible scientific information to a non-scientific audience, who need to have an awareness and understanding of the constantly changing and increasing body of knowledge that is science, technology and engineering. There is no question that we must do whatever we can to prevent the general public from feeling alienated from all things scientific in today's world as more and more discoveries and developments are made. Free Science Fairs with face-to-face encounters in a friendly, fun environment are an inspiring event for all involved.