NATIONAL YOUTH SCIENCE FORUM

Founding Partner

2014–2015 Annual Report

www.nysf.edu.au

IMAGE: NYSF/SARAH SAMSARA

nysf.edu.au

/NYSFoz

In 2014–2015 the NYSF

1200+ applicants

600+ assessed suitable to attend the program

400 places for students in the January Sessions

21 Rotary districts

60 selection panels across Australia

135 January lab visits and site tours

23 Next Step visits in major partner centres

43% of participants came from remote & regional areas

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IMAGE: NYSF/SARAH SAMSARA

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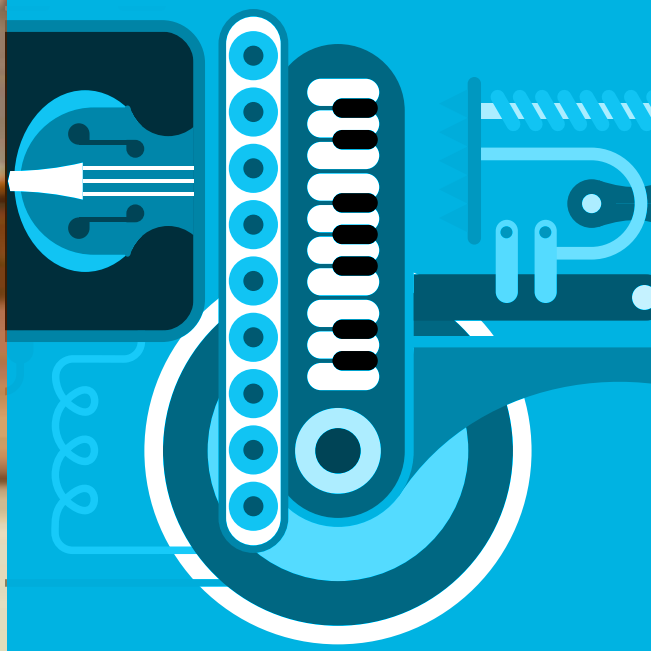
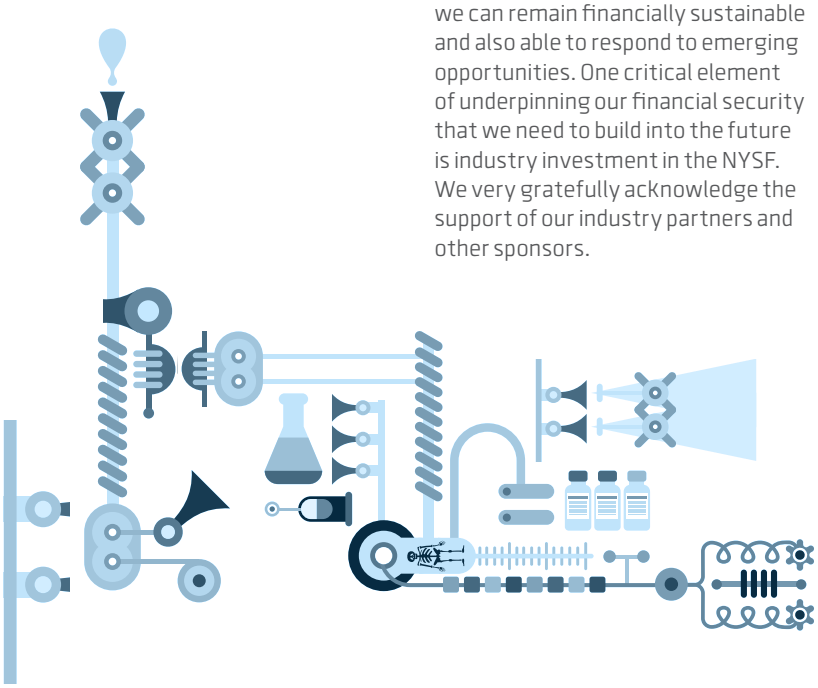


From the Chair

The National Youth Science Forum (NYSF) is without doubt one of Australia's most outstanding programs targeted at inspiring our most capable young people with a passion for science. The NYSF program exposes this very lucky group to extraordinary experiences in university science labs and in industry not only opening the participants' eyes to science beyond the school gates but also creating a powerful cohort to support students thinking of embarking on STEM careers. We are currently poised at a critical point in Australia's evolution – with jobs disappearing in manufacturing and the rapid rise of Asia it is critical that we prepare our next generation of young Australians with the STEM skills they need to power our capacity to innovate to secure our economic future.

We are currently developing a strategic plan for how the NYSF will be able to meet this mission of inspiring our most capable young scientific minds into the future. A key element of this is how we can remain financially sustainable and also able to respond to emerging opportunities. One critical element of underpinning our financial security that we need to build into the future is industry investment in the NYSF. We very gratefully acknowledge the support of our industry partners and other sponsors.



Over the past year we have been reviewing the NYSF's constitution to reframe it in a way that supports the more effective governance and provision of advice to the NYSF. The intent is for this refreshed constitution to be put in place at our upcoming AGM in August.

I had the opportunity to participate in the NYSF as a 16 year-old back in 1990 when it was called the CRA National Science Summer School. For me it was the first time I got to meet other kids like me – who were excited by science and hungry to get a feel for what it would be like to do science beyond school. The opportunity to become immersed in this wonderful program for two weeks was transformational – I came back home utterly confirmed in my commitment to go on and get a PhD in Physics! It is an honour to serve as the Chair of the NYSF and give back to this organisation that does such a fabulous job in supporting and inspiring our next generation of scientists and engineers.

Finally, I would like to take this opportunity to thank all the people who contribute time, talent and passion to this wonderful organisation – from the NYSF Director, Damien Pearce and the amazing NYSF office staff, the student staffies, the Council and Executive committees and of course the fabulously supportive Rotary community who tirelessly give of their time to support the selection and hosting of students.

Professor Tanya Monro, FAA, FTSE, FAIP, FOSA, GAICD
June 2015

From the Director

It is with great pleasure that I present the Director's Report for 2014–15. This is my second annual report as Director and it is truly a privilege to lead such a dynamic and contemporary organisation.

The highlights of the year have included the success of our youth and teacher programs, particularly launching Lockheed Martin Australia as a major sponsor, collaborating with Outward Bound Australia for the delivery of the Student Staff Leadership Program, and continuous improvements to our organisational governance.

In my first report I detailed the restructure of the corporate operations of the NYSF that has allowed us to consolidate our administration processes and program management models. The subsequent increase in efficiencies and improved reporting has continued with the successful implementation of an improved financial management system. This means that we can confirm that we are operating as economically as possible and making the greatest use of the resources available.

As the NYSF January sessions are conducted for young people by young people, this year we have focused on improving the process of developing our Student Staff Leaders (Staffies). For those who may be unaware, the NYSF Student Staff Leadership program prepares the 42 Staffies for their facilitation and coordination roles during the January Sessions. It is very pleasing that the NYSF is collaborating with Outward Bound Australia to deliver this program. As part of this program, the Staffies completed skill sets in training and mentoring and also participated in an outdoor orientated experiential based learning program. I would like to acknowledge the support of Amy Norman, Steven Falconeri and Brett Slarks, our senior student staff leaders for 2014–15, and the Outward Bound Team for its efforts in developing this initiative.

This year we also welcomed Lockheed Martin Australia as a major sponsor of the NYSF – the first plank in our strategy to attract sponsors in the program from across the different economic sectors that are powered by science, technology and engineering. This investment by Lockheed Martin is significant and reflects an understanding of the important role of outreach and extension programs such as the NYSF in encouraging young Australians to continue their studies in the science, technology and engineering spheres. We acknowledge Lockheed Martin's vision in joining with us to continue our support for young people.

Another milestone for the NYSF in 2014–15 was to increase for the first time the numbers of young people who could attend the Canberra NYSF January Sessions. As a result of the support from the Australian National University and Burgmann College we were able to increase the numbers to 200 for each of the sessions, limiting the impact of the reduction in places upon the 2014 completion of our contract to run a third session in Western Australia. Research and discussions are continuing around delivering NYSF January Sessions in additional locations in the future.

Planning for the NYSF programs begins some 18 months prior to the January of the year in which it is delivered. Plans for 2016 and 2017 are well in hand and we are looking forward to welcoming another 400 young people to participate in the program in January. We review and revise the program each year, to ensure that the participants are learning about the latest science research as well as gaining the best opportunity to explore their options for future study and career choices.

I would like to thank Professor Monro for her leadership of the NYSF and also endorse the vote of thanks that she extended to members of the Council and Executive committees, office staff, student staff and Rotary friends. I would also like to acknowledge the many individuals, from across our stakeholder groups who give up their time to give lectures, and host lab and industry visits across our suite of programs.

These multiple contributions allow the NYSF to continue each year, building on the work done over the past 32 years, delivering a series of programs that make a difference to young Australians with a passion for science, and to the wider Australian community.

Damien Pearce
June 2015

"This 12-day forum has been one of the most rewarding experiences of my life, and I have gained so much more than I could have ever anticipated. I applied to the NYSF with an interest in science, but it was at the NYSF that I discovered my passion for science and I am eager to see where my future will take me. I can't recommend the NYSF experience enough. Thank you!"

Samantha Donaldson, NYSF 2015

What is the National Youth Science Forum?

The National Youth Science Forum (NYSF) is a national not-for-profit organisation that offers a suite of programs, all of which are designed to develop and support the engagement of Year 12 students on to prospective vocation, study and employment opportunities within science, engineering and technology.

The NYSF provides an environment for community minded, academically well-rounded incoming Year 12 students, who have an interest in science, technology engineering and mathematics (STEM), to make informed decisions about future study and career options within a collaborative professional and social environment with like-minded peers.

IMAGE COURTESY T8 PHOTOGRAPHY/NYSF

The Hon Karen Andrews, Parliamentary Secretary to the Minister for Science and Industry, attended the Session C Science Dinner for NYSF 2015, pictured here with Scott Thompson, Lockheed Martin Australia, and students Josh Liaw and Jimmy Fan

The NYSF enjoys and values high-level support in the Australian community.

Additionally, the NYSF is supported by a significant number of sponsors and partners including Rotary clubs within Australia – its founding partner.

Corporate organisations, universities, private and federally funded research and development organisations, and state and territory governments also support the NYSF.

The NYSF January Sessions held in Canberra are hosted by the Australian National University (ANU).

Over 10,000 young Australians have taken part in the NYSF program since 1984.

IMAGE COURTESY STEVE KEOUGH/LOCKHEED MARTIN AUSTRALIA

Professor Ian Chubb AC, the Chief Scientist for Australia, speaking at the Opening Ceremony, Session C, NYSF January 2015. Professor Chubb is the Science Patron of the National Youth Science Forum.

IMAGE COURTESY WWW.GG.GOV.AU

His Excellency General the Honourable Sir Peter Cosgrove AK MC (Ret'd), Governor-General of the Commonwealth of Australia is the Patron of the National Youth Science Forum.

IMAGE: NYSF/GEOFF BURCHFIELD

What are the benefits of the NYSF?

An independent survey of NYSF Alumni conducted in 2012 indicated that:

- The NYSF had a significant impact on study choices and expanded options for professional development.
- Alumni cite that science teachers and family members are highly influential in the encouragement of pursuing careers in science, engineering and technology.
- The NYSF strengthened participants' interest and commitment to careers within science, engineering and technology.
- Alumni have higher success rates in applying for undergraduate scholarships compared to the national average.
- Completion rates for Alumni for undergraduate and post-graduate study are higher than the national average.
- The Group of Eight (Go8) institutions dominate in terms on Alumni choices for enrolment for both undergraduate and post-graduate degrees (including MBBS – Bachelor of Medicine, Bachelor of Surgery).
- Alumni almost exclusively pursue their first undergraduate degree in Australia. International destinations are popular for subsequent degrees (particularly Europe).
- Alumni have embarked on successful professional careers covering the wide sphere of research and development, which includes management, business and education.
- The participants highlighted the relationship with all of NYSF's partners: corporate, education, research organisation and government, as important as it influenced the study choices and helped to inform decision-making.
- The Alumni indicated a strong interest in reunions and social events, particularly where the focus of these events could extend learning in others and younger people.
- The most memorable part of the NYSF was the opportunity to meet like-minded peers.

How are NYSF Students selected?

Students submit an Expression of Interest to participate in the NYSF, and applications for this process open on 1 March and close on 31 May each year.

Students in Year 11 are encouraged to apply if they are interested in science, technology and/or engineering, involved in their community and undertake extracurricular activities.

Students are selected based not just on their academic achievements, but also on other interests, and their social and communication skills. During the January NYSF Sessions, and throughout their NYSF experience, these young people will acquire additional skills that will allow them to take their place in society as tomorrow's leaders.

Expressions of Interest are processed via the student's local Rotary club, which decides whether to endorse them to the Rotary District selections for the NYSF. Positions are competitive, and Rotary District NYSF Committees conduct an extensive selection process to determine who will succeed in gaining a place at the NYSF residential program the following January. Students are often supported by Rotary clubs in their fundraising activities to cover the cost of attending NYSF programs.

In 2015, 43% of participants came from remote and regional areas of Australia, reflecting the national reach facilitated by Rotary's engagement in the program.

IMAGE: GEOSCIENCE AUSTRALIA

The NYSF Supporting Programs

The NYSF also delivers other programs throughout the year that support or extend the NYSF's core objectives.

These programs are:

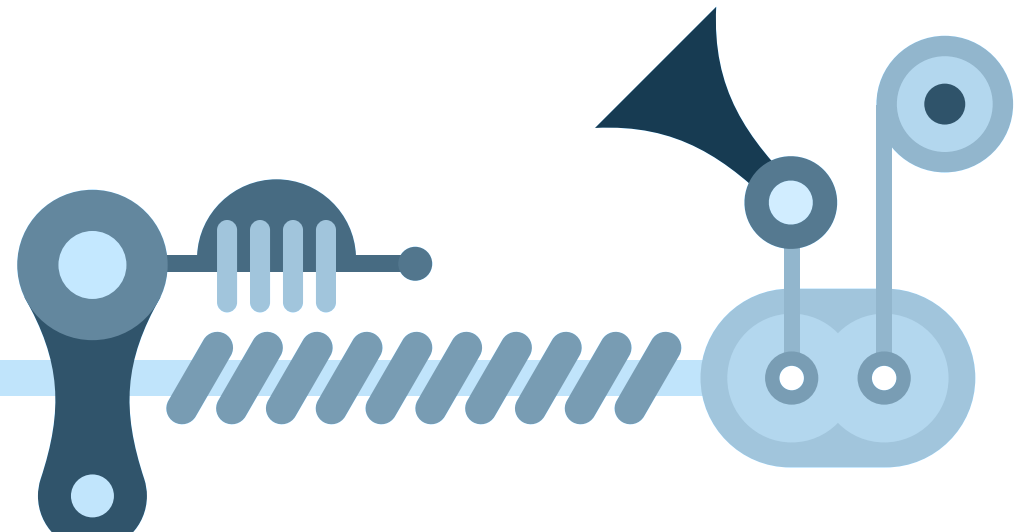
- Next Step Program;
- NYSF Student Staff Leadership Program;
- National Science Teachers' Summer School;
- NYSF International Program.

Next Step Program

From March to July each year, the NYSF offers a program of events across Australia for students who have participated in the January Sessions. These programs are conducted in close collaboration with our funding partner universities across Australia, and our partners from the corporate sector and research organisations. The programs are designed specifically for NYSF students, to extend and develop their knowledge of courses, facilities, scholarships and accommodation on the different campuses. Leading industries provide in-house workshops and tours of facilities and exposure to current research that is not generally accessible to the public. Students from the January Sessions are encouraged to participate in as many of these Next Step events as possible throughout the year.

NYSF Student Staff Leadership Program

True to the focus on youth and leadership development, the January Sessions are facilitated by past NYSF students who have been specially selected for the task. All have successfully completed the NYSF leadership development program. This includes an on-line training module developed and managed by Outward Bound Australia on behalf of the NYSF and a week-long training program at the Outward Bound Australia Headquarters, near Tharwa, ACT, including a three day trek. The trek experience helps participants to develop awareness and social connection and to gain an understanding of individual and group values, development of supporting and trusting relationships, and the opportunity to critically reflect on their own performance and the performance of others within a shared leadership approach. This program is unique because the student staff members are selected by their peers from the previous January Sessions. This represents the youth stewardship of the NYSF as a current, meaningful, and legitimate development opportunity, by youth for youth.



National Science Teachers' Summer School

The week-long National Science Teachers' Summer School (NSTSS) is conducted by the NYSF in collaboration with the Australian Science Teachers Association (ASTA). The NSTSS caters for 45 primary and high school science teachers from across Australia, who have a record of achievement towards innovative, contemporary and student-centred approaches to science and technology teaching and learning. Additionally, when selecting the participants, the candidates' aptitude for educational leadership is considered.

The NSTSS is held at the ANU and coincides with the second week of Session A of the NYSF January Sessions. The NSTSS provides the opportunity for the teachers to engage with scientists, research facilities and cutting-edge technologies that are not widely available in school environments. Teachers are also engaged in workshops and discussions about teaching, learning and assessment in the science classroom.

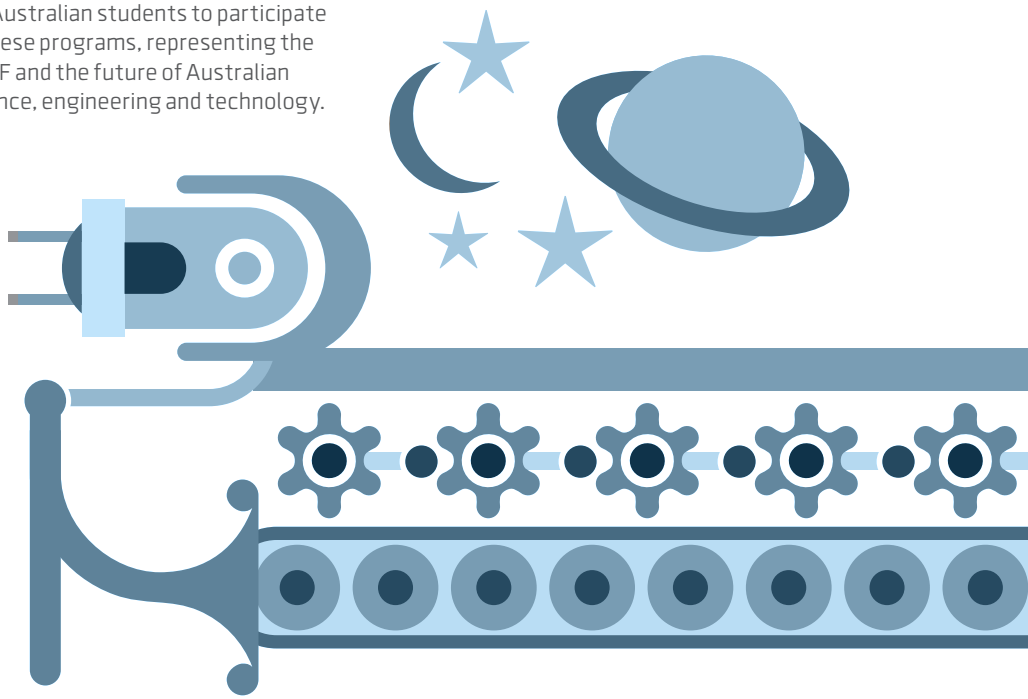
Participation in the NSTSS provides science teachers with an opportunity to re-invigorate their enthusiasm and interest in the many facets of science and science teaching. The program's aim is to strengthen their science and science education knowledge, and increase their awareness of tools to enhance teaching practices.

NYSF International Program

The NYSF has affiliations with a number of well-established youth science programs operating internationally in places such as Canada, Stockholm, pan-Europe, Germany, United States of America and the United Kingdom. These relationships allow NYSF students to participate in a number of programs during the year that they attend they NYSF. If they are interested, students apply for one of these international experiences.

The NYSF International Program acknowledges the importance of cultural and scholarly exchange in an increasingly globalised world where innovation requires the successful exploration of new ideas, new techniques, processes and commodities.

The NYSF currently offers 40+ places for Australian students to participate in these programs, representing the NYSF and the future of Australian science, engineering and technology.



National Science Summer School Council (NSSSC)

The Council was established under the Constitution of the National Science Summer School Incorporated to oversee the management and operation of the National Youth Science Forum, its programs, and the NYSF Student Staff Leadership Program.

The membership consists of representatives of the major scientific organisations in the ACT, namely, one nominee of:

- Australian Academy of Science;
- Australian Academy of Technological Sciences and Engineering (ATSE);
- The Australian National University (ANU);
- Commonwealth Scientific and Industrial Research Organisation (CSIRO);
- District Governor, Rotary International, District 9710;
- Rotary International Institute and Zone 1;
- the major sponsoring organisation of the National Science Summer School for the current year as determined by the Committee

In addition, up to five other persons can be elected for a period ending at the conclusion of the next Annual General Meeting.

Patron

His Excellency General the Honourable Sir Peter Cosgrove AK MC (Retd)
Governor-General of Australia

Science Patron

Professor Ian Chubb AC, FACE FTSE
Chief Scientist for Australia

NSSS Council Members – at 31 March 2015

Chair
Professor Tanya Monro, FAA FTSE FOSA FAIP GAICD

Director
Mr Damien Pearce

Secretary
Mr Adam de Totth

Treasurer
Mr Michael Pedler

CSIRO representative
Dr Lyn Hinds

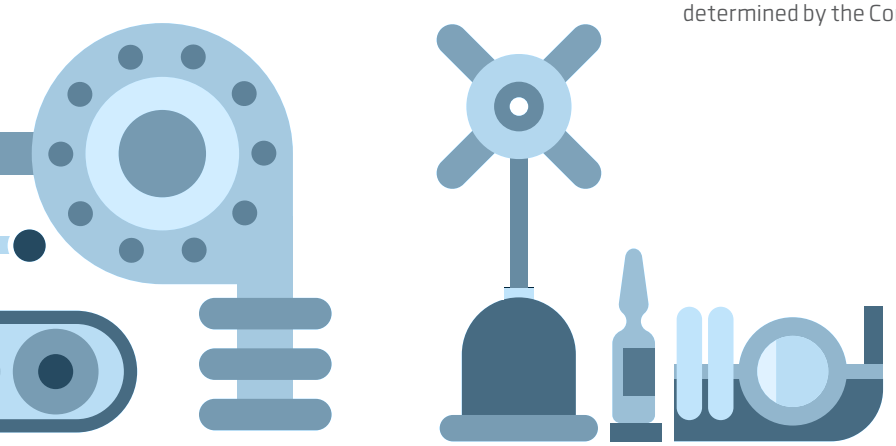
Rotary Liaison Officer
Mr Rob Woolley

Australian Academy of Science Representative
Professor Jenny Graves AO, FAA

ATSE Representative
Emeritus Professor Robin Stanton, FTSE

ANU Representative
Professor John Close, SFHEA

Rotary District Governor 9710
Mr Rowley Tompsett



”NYSF is an amazing experience that I would recommend without a second thought. Thanks so much to Rotary, NYSF and all the partners for giving so many young Australians this opportunity. I would also like to say how amazing it was to be given this opportunity as a rural student who, normally, would not have exposure to this type of event.”

Corinne Antonoff, NYSF 2015

“I would describe it as an incredibly fun and eye-opening experience which is not to be passed up. ... It will provide you with invaluable aid for year 12 and beyond that cannot be obtained anywhere else. The best aspect of the NYSF is the networking we got to do not only with like-minded students from around Australia, but also some of Australia’s top leading scientists. It’s a great program and would like to see it continued for as long as possible!”

Toby Smith, NYSF 2015

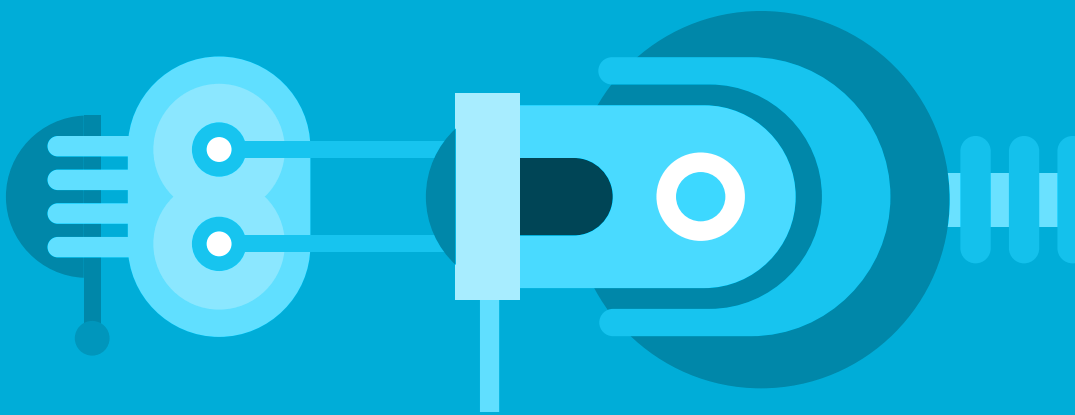


IMAGE: NYSF/SARAH SAMSARA

Building a better future in STEM

In May 2015, the Chief Scientist of Australia, Professor Ian Chubb opened the new Sciences Teaching Facility at the University of Wollongong.[1]

During his speech, Professor Chubb spoke of Australia's progress in tertiary STEM education. In 1975 when the University of Wollongong was established, only three per cent of the population had a tertiary or technical qualification in either technology or physical sciences.

When the Australian Bureau of Statistics last analysed the workforce – including categories of employment that didn't exist in the 1970s, that proportion had grown more than five times.[2]

The report found, of our working age population, 15 per cent had a Certificate III or above in a STEM field.[3] It is an enormous and important level of growth. Economists would attribute that growth to 'market pull': demand, therefore supply provides to meet the demand.

Professor Chubb noted that Australia would need to develop and maintain research capability in a broad range of areas into the future. "We need research that will enable us to access and benefit from the global stock of knowledge – the 97 per cent or so done elsewhere."

"We need research that answers to our unique needs as a nation. There are things that only we can do for ourselves. We can't expect people anywhere else to worry about the flows of the Murray-Darling River System, or the use of the Great Artesian Basin, or the impact of fracking on our aquifers. We will have to do that for ourselves."

"But above all we need people: we need talented people, we need skilled people and we need adaptable people. We need people who can adjust what they do and how they do it to the unpredictability of the future."

Professor Chubb suggests the only certainty about the future is that it will be unpredictable. People who are educated through a proper educational process, through a proper scientific process based on method and ethics, skepticism, critical thinking, curiosity, collaboration, teamwork – all of those things that come out of a high quality science education – will give us people who are adaptable enough to change when the circumstances and our needs change.

1 www.chiefscientist.gov.au/2015/05/speech-university-of-wollongong-opening-of-the-sciences-teaching-facility/

2 www.abs.gov.au/ausstats/abs@.nsf/Lookup/4250.0.55.005main+features12010-11

3 Australian Bureau of Statistics, Perspectives on education and training: Australians with qualifications in science, technology, engineering and mathematics (STEM), 2010-11 (cat. no. 4250.0.55.005).

Professor Chubb proposes that we think about the importance of science in our lives. Australian industry is already reporting serious deficiencies in the STEM literacy of the general workforce and difficulty in recruiting for STEM roles.

"If you get left behind, the gap becomes so big that we can't possibly fill it. Then we become a mendicant motion. It is up to us to do something about it."

"If we do nothing, the future is not promising.

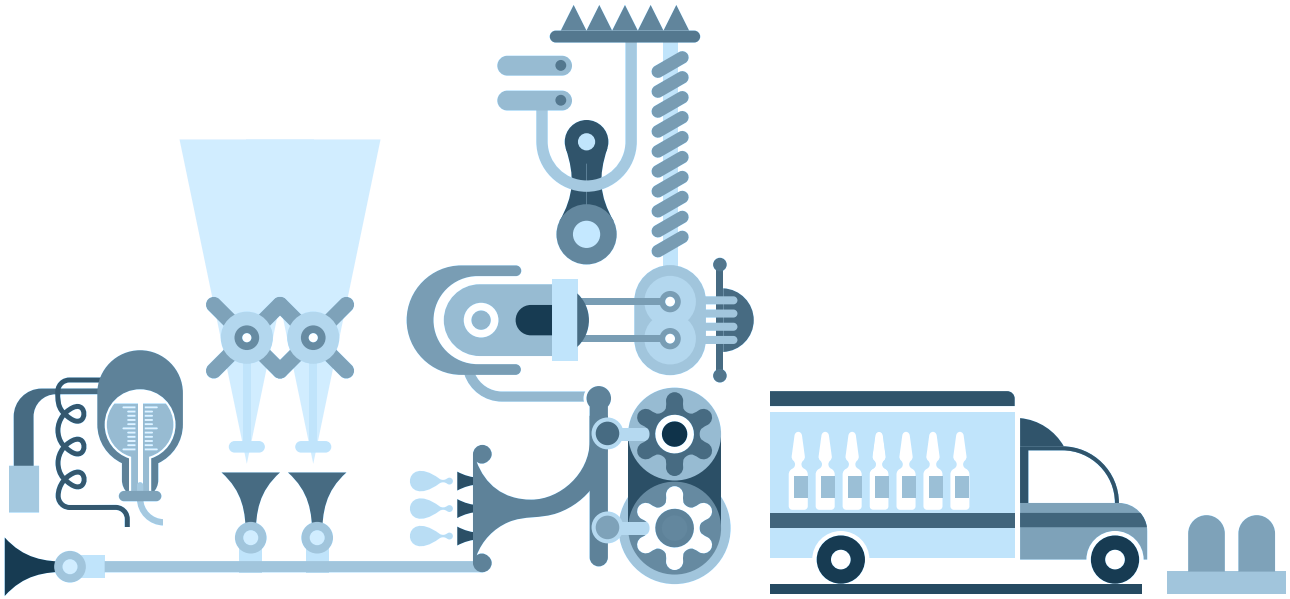
- Participation rates in science subjects at Year 11 and 12 are now at the lowest they have been in 20 years.
- In 2012 there were 30,800 more students in year 12 than in 1992 but:
  - 8000 fewer physics students
  - 4000 fewer chemistry students; and
  - 12,000 fewer biology students than two decades previously. "

"And a country that thinks scientists and engineers are only useful for science and engineering jobs is selling people short."

"STEM should be so fantastically and wonderfully taught that students are queuing up to enrol in these subjects. Then, students could understand how awesome science can be when they are taught by people who love science and take their passion for science into the classroom and present science as wonderful and compelling stuff to do."

"It is a choice that enriches the individual as much as it benefits the society around them. And when it is taught with inspiration students will see how utterly awesome it is."

IMAGE: NYSF/SANDRA MEEK



4 www.aigroup.com.au/portal/binary/com.epicentric.contentmanagement.servlet.ContentDeliveryServlet/LIVE_CONTENT/Publications/Reports/2015/14571_STEM%2520Skills%2520Report%2520Final%2520-.pdf

5 Kennedy, Lyons and Quinn, The continuing decline of mathematics and science in Australian high schools, Teaching Science, Volume 60, Number 2, June 2014

Our Partners

Rotarians Danny Matson (D95760), Ruth Barber (D9700) and Kevin Trent (D9465)

IMAGE: NYSF/T8PHOTOGRAPHY

Rotarian Penny Hickman (D9830) at NYSF 2015 Session C Partners' Day

NYSF program funding is sourced from a wide range of partners.

Rotary is the founding partner of NYSF. Rotary clubs receive, assess and endorse student Expressions of Interest for NYSF, referring those applicants who have been endorsed as being of a high standard to their local NYSF District Chair. The local District Chair and NYSF Committee conduct selection interviews, undertake final ranking of applicants in order of their suitability and make the offer of places at NYSF in terms of the quota that has been allocated to that District. Rotary clubs may assist students financially towards the cost of attending NYSF, or help with fundraising.

Rotary Districts organise orientation meetings of selected students in preparation for attending NYSF, and assist in student travel connections to and from the January Sessions.

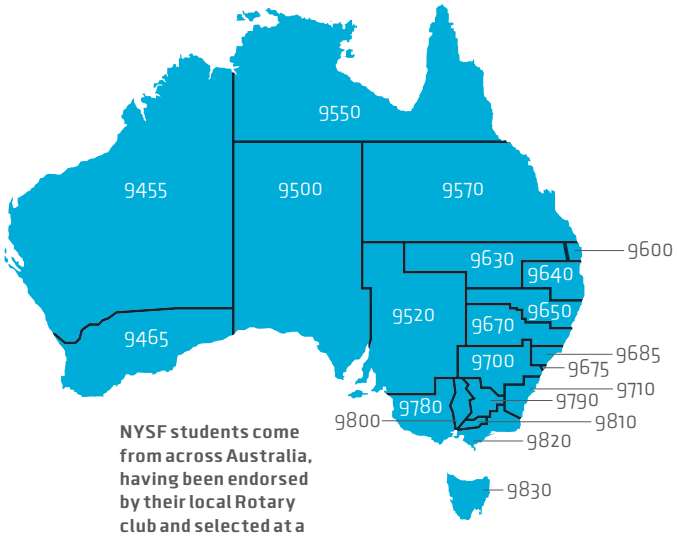
Rotary also provides adult mentors at each January Session, and home hospitality for students at key points in the program.

Funding Partners

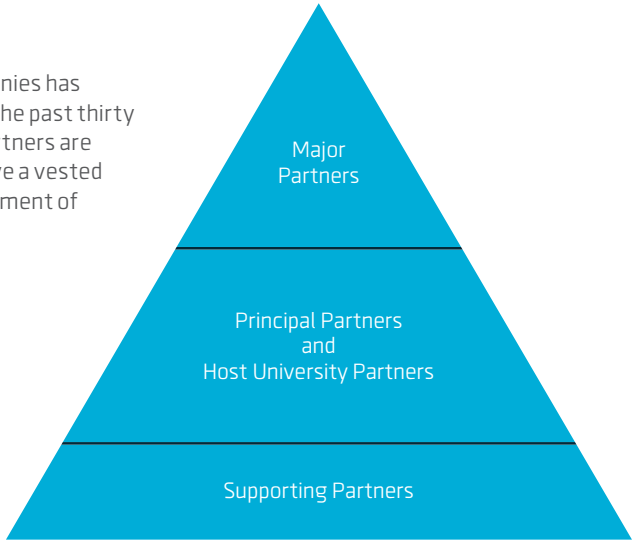
A wide range of companies has supported NYSF over the past thirty years. Our industry partners are organisations that have a vested interest in the development of young people who want to continue their education and careers in STEM activities.

Universities have also actively supported the programs of the NYSF over the past thirty years – along with the current host university, The Australian National University, The University of Melbourne, The University of New South Wales, The University of Queensland, and Monash University supported the NYSF this year.

New partners are being sought on a regular basis, and are categorised broadly as major partners, principal partners, and supporting partners.



NYSF students come from across Australia, having been endorsed by their local Rotary club and selected at a Rotary district level to attend the program.



NYSF Partnership Structure

Major Partners contribute between $100,000 to $150,000 per year for a three-year period, an opportunity limited to 2–3 organisations, all operating in different sectors.

Principal Partners and Host University Partners contribute between $50,000 to $100,000 per year for a three-year period.

Supporting Partners Partners contribute between $12,000 to $50,000 per year.

2015 Partners

Information about our Partners can be found on our corporate website at www.nysf.edu.au/partners.

Lockheed Martin Australia announced as Major Partner of NYSF

Professor Chubb, Raydon Gates and Senator Lundy spent time talking with students during the Session C NYSF 2015 Opening Ceremony Morning Tea

In January 2015, the NYSF was proud to announce Lockheed Martin Australia as a Major Partner of the NYSF, with a commitment to support the 2015, 2016 and 2017 programs.

The announcement was made by Raydon Gates, Chief Executive of Lockheed Martin Australia at the Opening Ceremony of Session C January 2015 at Parliament House. Professor Ian Chubb, Chief Scientist for Australia and the NYSF's Science Patron welcomed the 2015 students, and encouraged them on their path of learning. The event was hosted by the retiring Senator for the Australian Capital Territory, Senator the Hon Kate Lundy, who spoke to the students about her own passion for science.

NYSF Director, Damien Pearce welcomed this investment by Lockheed Martin, saying it is, "... significant and reflects an understanding of the important role of outreach and extension programs in encouraging young Australians to continue their studies in the science, technology and engineering spheres."

"Lockheed Martin is committed to the future success of Australia's technical talent by supporting STEM education initiatives, like the NYSF. We believe that this commitment to our youth is critical to keep Australia competitive for generations to come," said Lockheed Martin's Raydon Gates.

The opportunity to visit the Lockheed Martin NexGen Cyber Innovation & Technology Centre in Canberra was a highlight for the engineering students in January.

Lockheed Martin's interests include aeronautics, information systems, mission systems and training, missiles & fire control, production, and space systems. At the secure facility, the visit hosts explained to the students the logistical and corporate reach of both Lockheed Martin Australia and Lockheed Martin international operations.

LOCKHEED MARTIN

Financial report

National Science Summer School Incorporated
09 478 516 183

Council's Report
For the Year Ended 31 March 2015

The Council of National Science Summer School Incorporated (the Association) submit their report for the year ended 31 March 2015.

In the opinion of the Council of the National Science Summer School Incorporated, the accompanying Statement of Profit or Loss Account and Other comprehensive income, Statement of Financial Position, Statement of Changes in Equity and Statement of Cash Flows are drawn up so as to present fairly the state of affairs of the Association as at 31 March 2015 and the results and cash flows of the Association for the year ended on that date.

Council Members

The Council is responsible for the management of the Association. The following persons held positions on the Council of the Association during the year ended 31st March 2015 or as at the date of this report:

Names	Position	Appointed/Resigned
Professor Tanya Monro	President	31/07/2014
Mr. Adam de Toth	Secretary	28/11/2013
Mr Michael Pedler	Treasurer	03/09/2010
Mr Damien Pearce	Director	01/09/2013
Dr Lyn Hinds	CSIRO representative	28/01/2003
Mr Rob Woolley	Rotary Liasion Officer	01/07/2013
Professor Jenny Graves	Australian Academy of Science representative	04/06/2014
Professor Robin Stanton	ATSE representative	28/01/2000
Professor John Close	ANU representative	14/07/2014
Mr Rowley Tompsett	Rotary District Governor 9710	01/07/2014

Council Members have been in office since the start of the financial year to the date of this report unless otherwise stated.

Principal activities

The primary objective for which the Association was established is to brief students in developments in science and technology and interest them in the importance of science-based industries in the future of Australia.

Operating result

The surplus of the Association for the financial year amounted to $ 83,384(2014: Deficit $ 63,909).

Signed in accordance with a resolution of the Members of the Council:

Chair: ..... Professor Tanya Monro

Treasurer: ..... Mr Michael Pedler

Dated 14 July 2015

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National Science Summer School Incorporated
99 478 516 163

Statement of Profit or Loss and Other Comprehensive Income
For the Year Ended 31 March 2015

	Note	2015 $	2014 $
Revenue	4	1,803,445	2,076,239
Accommodation		(176,997)	(219,617)
Advertising		(23,284)	(35,993)
Audit		(8,700)	(9,540)
Bad and doubtful debt		-	(18,111)
Contractors		(30,000)	(127,551)
Depreciation expense		(7,089)	(1,428)
Entrance fees		(58,342)	(52,678)
Equipment		(4,096)	(7,671)
Fundraising		(32,000)	(10,500)
Insurance		(14,648)	(10,419)
Leadership cultural program		(30,000)	(57,369)
Legal fees		(4,453)	(28,235)
Meals		(246,478)	(311,106)
Merchandise		(328)	(12,658)
Office and administrative expenses		(119,910)	(59,178)
Other expenses		(32,360)	(23,409)
Promotions		(1,040)	(71,954)
Salary and other employee entitlements		(497,232)	(527,776)
Superannuation contributions		(44,695)	(45,057)
Travel		(388,299)	(509,898)
Surplus/(Deficit) for the year		83,384	(63,909)
Other comprehensive income for the year		-	-
Total comprehensive income for the year		83,384	(63,909)

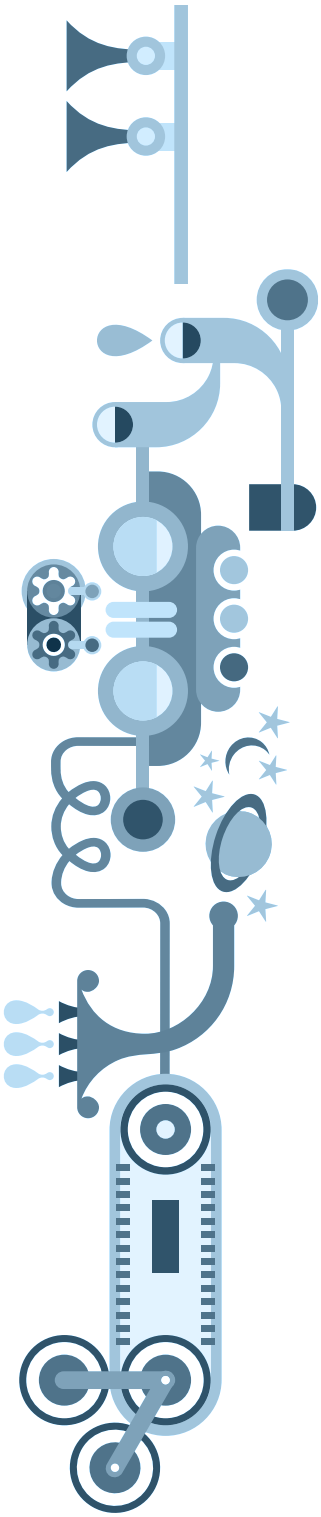
The accompanying notes form part of these financial statements.

National Science Summer School Incorporated
99 478 516 183

Statement of Financial Position
As At 31 March 2015

	Note	2015 $	2014 $
ASSETS			
CURRENT ASSETS			
Cash and cash equivalents	5	747,094	545,004
Trade and other receivables	6	36,562	94,902
Other assets	7	58,302	5,015
TOTAL CURRENT ASSETS		841,958	644,921
NON-CURRENT ASSETS			
Property, plant and equipment	8	13,516	1,679
TOTAL NON CURRENT ASSETS		13,516	1,679
TOTAL ASSETS		855,474	646,600
LIABILITIES			
CURRENT LIABILITIES			
Trade and other payables	9	66,656	47,951
Employee benefits	10	97,737	77,702
Other liabilities	11	151,830	67,500
TOTAL CURRENT LIABILITIES		316,223	193,153
NON-CURRENT LIABILITIES			
Employee benefits	10	3,665	1,245
TOTAL NON-CURRENT LIABILITIES		3,665	1,245
TOTAL LIABILITIES		319,888	194,398
NET ASSETS		535,586	452,202
EQUITY			
Retained earnings		535,586	452,202
TOTAL EQUITY		535,586	452,202

The accompanying notes form part of these financial statements.



National Science Summer School Incorporated
ABN 478 516 183

Statement by Members of the Committee

In the opinion of the committee the financial report as set out on pages 3 to 17:

1. Present fairly the financial position of National Science Summer School Incorporated as at 31 March 2015 and its performance for the year ended on that date in accordance with Australian Accounting Standards (including Australian Accounting Interpretations) of the Australian Accounting Standards Board.

2. At the date of this statement, there are reasonable grounds to believe that National Science Summer School Incorporated will be able to pay its debts as and when they fall due.

This statement is made in accordance with a resolution of the committee and is signed for and on behalf of the committee by:

Chair .....
Professor Tanya Monro

Treasurer .....
Mr Michael Pedler

Dated 14 July 2015

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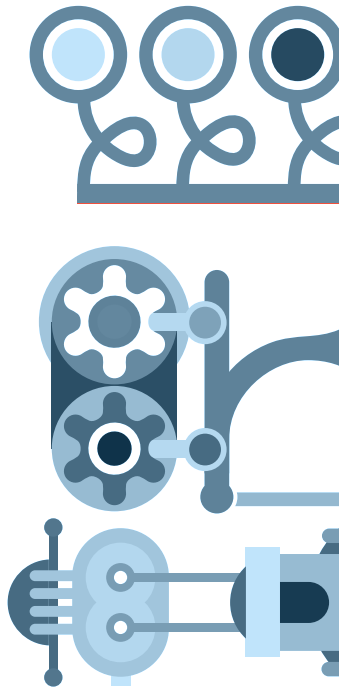


Program Reports

2015 January Sessions A and C

Session A – 5–17 January
Session C – 19–31 January

In January 2015, 400 young people participated in the NYSF 2015 January Sessions over 12 days each in two Canberra Sessions – Session A and C.

A small number of international students attended from Fiji, Brazil, Canada, New Zealand and South Africa.

The program included a range of visits to laboratories and facilities associated with the host university, The Australian National University, as well as the University of Canberra, the Canberra Institute of Technology, and the UNSW Australia campus at the Australian Defence Force Academy.

Local and regional facilities hosted industry site tours that offered the students insights and information about a wide range of research fields and career possibilities, including Lockheed Martin Australia; Geoscience Australia; Bungendore Windfarm; Murray-Darling Basin Authority; the Australian Academy of Science; Canberra Railway Museum; Tidbinbilla Deep Space Network;, Canberra Hospital; Capital Pathology; Australian Scientific Instruments; Bungendore Veterinary Clinic; National Arboretum; CSIRO; ACTEW Water Management; Age of Fishes Museum Canowindra; Therapeutic Goods Administration; and SMEC.

The Opening Ceremony for each session was held at Parliament House, followed by an important session on legislative frameworks conducted by the Parliamentary Education Office.

One of the highlights of Session A was the Science Dinner and panel discussion that launched the Science 50:50 Project, an initiative funded by the Australian Research Council. UNSW Australia's Scientia Professor Veena Sahajwalla is leading the project which aims to

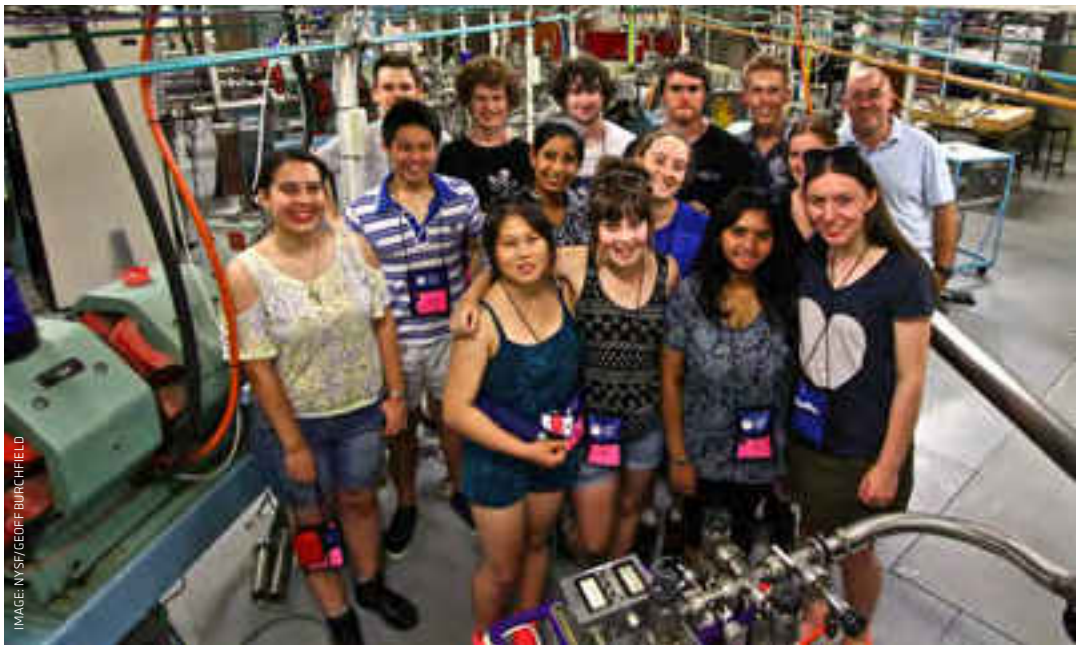


IMAGE: NYSF/GEOFF BURCHFIELD

IMAGE: NYSF/SANDRA MEEK

encourage more young women into studying engineering at university, and matches students into mentoring placements with Australian companies, such as Cochlear; Arrium Mining and Materials; and the CSIRO.

The Session C Science Dinner included the Indigenous Knowledge and Engagement Symposium that explored the interface of western science with indigenous knowledge systems. Each speaker bought a particular personal perspective to the discussion, relating his or her experiences of working within science.

Panel speakers were Mr Bhiamie Williamson from the Native Title Research Unit and Dr Rod Kennett, Senior Research Fellow from the Australian Institute at the Australian Institute of Aboriginal and Torres Strait Islander Studies, Ms Josie Douglas, Aboriginal Research Fellow, CSIRO, Mr Bradley Moggridge, Aboriginal Water Initiative, NSW Office of Water, and Professor Group Captain Lisa Jackson-Pulver, Chair of Indigenous Health, University of New South Wales and Royal Australian Air Force, Specialist Reserve.

The NYSF program exposes participants to a range of science and technology activities and study opportunities, encouraging them to think outside of the square about their future. Presentations on what happens after year 12, tertiary study opportunities, and careers paths are included, as well as time for fun and socializing with visits to local sporting and swimming facilities.

IMAGE: NYSF/T8PHOTOGRAPHY

The After Dinner Panel Discussion for Session A NYSF 2015 was on issues relating to Women in Science and Engineering. Speakers were Ms Laura Frank, Vice President and Chief Operating Officer, Lockheed Martin Australia, Ms Gillian Burrowes, Chief Executive Corporate Affairs, Arrium Mining and Materials; Professor Aidan Byrne, CEO of the Australian Research Council, Dr Deanna D'Alessandro, an NYSF alumna (1996) and ARC Queen Elizabeth II research fellow from the University of Sydney, and Mr Geoff McNamara, winner of the Prime Minister's Prize for Excellence in Science Teaching in 2014.

IMAGE: NYSF/SANDRA WEEK

IMAGE: NYSF/T8PHOTOGRAPHY

(l-r) Joe Sambobo, Marian Heard (CSIRO), Brad Moggridge and Josie Douglas at Session C NYSF 2015 Science Dinner

IMAGE: NYSF/T8PHOTOGRAPHY

NYSF 2015 student Dane Seaver and Professor Group Captain Lisa Jackson-Pulver

Partners' Day 2015

During each January Session, the NYSF partners send representatives to speak to the NYSF students about their organisations, and the opportunities that study at their university, or work in their particular field can offer.

In 2015, 16 NYSF funding partners made 28 presentations at Partners' Day, offering unique insights about their fields of expertise, and their experiences.

In their feedback, students indicated that they valued the opportunity to meet with partners and talk with them about their future study and career choices:

"Great opportunity to interact and network with some outstanding business and institutions."

"It was valuable to hear from industry and universities about opportunities in science and in particular hearing from industries that were useful to me."

"This was a great day. I loved talking to the partners and finding out about different career options."

"Learnt a lot from individual groups, especially during the expo."

"An eye-opening day, where I was exposed to fields that I've never considered before. Now I'm more determined to reach my goal as I know that there are multiple pathways."

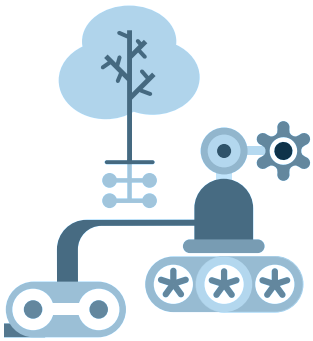


IMAGE: NYSF/T8PHOTOGRAPHY


IMAGE: NYSF/T8PHOTOGRAPHY


IMAGE: NYSF/T8PHOTOGRAPHY


IMAGE: NYSF/T8PHOTOGRAPHY

IMAGE: NYSF/GEOFF BURCHFIELD

IMAGE: NYSF/GEOFF BURCHFIELD

National Science Teachers' Summer School

The National Science Teachers' Summer School (NSTSS) was delivered at the same time as the second week of Session A of the NYSF, also at the Australian National University (ANU).

Participants heard keynote lectures across the full range of sciences, visited major research facilities at ANU including the Mount Stromlo Observatory, the Research School of Physics, and the Research School of Earth Sciences. They also went further afield, visiting Geoscience Australia and the Murray Darling Basin Authority, and rounded off their visit with a session at the National Science and Technology Centre, Questacon, to see range of resources available there for teachers.

The teachers indicated that the NSTSS is successfully delivering a highly valued professional development program. They report that they remain in contact with each other and perhaps, more significantly, with the researchers they met in Canberra, who continue to offer information and resources to assist them in their classes.

The 2015 program was funded by a grant from the Commonwealth Department of Education and the Department of Industry and Science, through Questacon. The teachers were welcomed to Canberra by Andrew Laming, the federal member for Bowman in Queensland, with a speech focusing on the importance of STEM education and its far-reaching effects on school children. He focused on the importance of arming young people with the appropriate level of STEM knowledge and understanding so that they can find good jobs, irrespective of whether they end up working in STEM fields.

NYSF acknowledges this support and would also like to thank the ANU, University of Canberra, CSIRO, Australian National Insect Collection, Questacon, the National Arboretum, Tidbinbilla Deep Space Tracking Station, Mt Stromlo Observatory, Australian Parliament House, School of Aerospace, Mechanical and Mechatronic Engineering – University of Sydney, National Arboretum, Mount Stromlo Observatory and Geoscience Australia for running seminars, workshops and lectures.

NYSF International Programs

The 2014 International Programs offered selected NYSF students the opportunity to attend six international science, technology, engineering and mathematics (STEM) related events.

Canada-Wide Science Fair (CWSF)

The CWSF is Canada's premier youth science event, and functions as the national finals of an annual science competition. More than 500 successful Canadian participants present a scientific project, which has previously been ranked highly in regional science fairs. Six Australian students are invited to the CWSF as ambassadors for Australian science and while in the host city, they visit local primary and high schools. In 2014 the CWSF was staged in Windsor, Ontario.

Research Science Institute (RSI)

The Research Science Institute (operated by the Center for Excellence in Education in Washington, DC) is held each year at the Massachusetts Institute of Technology (MIT), Boston, one of the world's highest ranked universities. Competition for a place at the RSI is fierce and strictly limited. Australia, represented exclusively through NYSF, has two places out of a total of 80. What sets this program apart is its six-week duration but in that time the RSI participants conduct research in a field of their choice with top scientists and engineers as mentors. This opportunity is second to none in terms of the networks that can be established.

National Youth Science Week (NYSW)

The NYSW attracts the best senior science students from all over southern Africa plus six Australians by special invitation. Like the NYSF, this South African program showcases top science and engineering career paths ranging from nuclear physics to aeronautical and automotive engineering.

International Science Summer School Heidelberg (ISH)

Similar to the US program, the ISH is a research-based program that runs for four weeks. The three Australian students attending are hosted by the city of Heidelberg, which is home to some of the world's finest research institutes such as the European Molecular Biology Laboratory (EMBL) and the Max Planck Institutes for Astronomy, Medical Research, and Nuclear Physics. NYSF's three Australian students join students from Europe, Asia and North America for the program.

IMAGE: NYSF/GEOFF BURCHFIELD

European Open Science Forum 2014 (EOSF)

EOSF is a biennial conference and in June 2014 was hosted in Copenhagen, Denmark. The NYSF sent six students to represent Australia. EOSF is dedicated to scientific research education and innovation and is an opportunity for leading scientists, young researchers, students, entrepreneurs, policymakers, journalists and the general public to discuss new discoveries and debate the direction that research is taking in all the sciences.

London International Youth Science Forum (LIYSF)

The LIYSF has been running for more than 50 years and attracts over 300 students from almost 60 countries for a single two-week session. In 2014, the NYSF sent ten students representing Australia. Hosted by Imperial College in South Kensington, the students attend lectures by high-profile scientists and see some of the finest research labs in the UK. There are day visits to Oxford and Cambridge and debates on controversial issues not to mention the chance to join an instant global network.

Stockholm International Youth Science Seminar (SIYSS)

The SIYSS is centered on the presentation in December each year of the Nobel Prizes for Science. Not surprisingly only a small number of international students are invited to this prestigious event and Australia, represented exclusively through the NYSF, is the only country that is guaranteed two places each year.

As well as attending the Nobel Prize Ceremony, all participants attend the dissertations of the Laureates and the official Banquet and Ball, the climax of the Nobel week.

NSW Trade & Investment

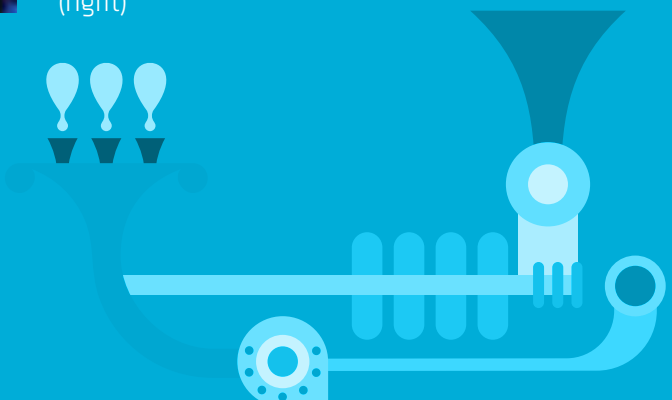
Travel on this program for students from New South Wales has been supported by NSW Trade & Investment.

"NYSF was some of the best 2 weeks of my life and I only wish it could have gone on for longer! I'm very excited about the Next Step Program. I feel inspired for my future career in science and where it could take me."

Chloe Jamieson-Grigg, NYSF 2015
(second from left with Marina Kaku, Jack Manera and Genevieve Muschal-Rooney)

"Attending the NYSF has been a major motivating factor for me in year 12. It reminds you that there are others just like you, and makes the prospect of university that much more exciting. It is also a great horizon expander. It opens doors and reveals them in places you would never have thought to look. It is possibly the greatest networking experience of your life. And to top it of the most fun two weeks you could ask for."

Sam Feegar, NYSF 2015
(right)



Next Step Program

The NYSF Next Step Program was delivered in Melbourne, Brisbane Canberra and Sydney in 2014.

Seventy-one (71) students participated in the Melbourne session held in March 2014. The University of Melbourne offered students a full day of lectures and lab visits as well as explaining the facilities available at its campus. NYSF partners CSL Limited and GlaxoSmithKline both hosted site visits to their facilities. Students toured the industrial labs and facilities and gained insights into the processes associated with the development of commercial products.

April saw the Next Step Program roll out in Brisbane, with 71 students taking part. Students visited the University of Queensland, the Queensland Institute of Medical Research's Berghofer Institute and the State Library of Queensland's The Edge Facility. The University of Queensland also hosted a Speed Date a Scientist social event, where students could talk to researchers about their career paths.

In July 2014, the Canberra Next Step Program attracted a core group of 15 students, with alumni also invited to participate in the visit to Lockheed Martin Australia's Security Intelligence Centre. Visits were also made to the Australian National University, the Australian National Botanic Gardens and Mount Stromlo Observatory.

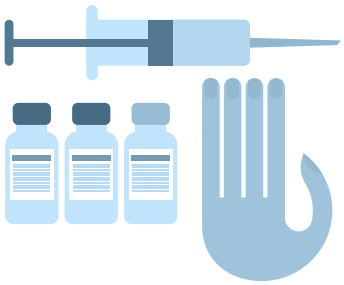
The Sydney Next Step Program also in July 2014 was spread across a number of institutions and facilities, including the Australian Nuclear Science and Technology Organisation, the University of New South Wales, the University of Western Sydney's Campbelltown and Hawkesbury Campuses, where the work of the Hawkesbury Institute for the Environment and research conducted by NYSF funding partner, the Grains Research and Development Corporation were featured.

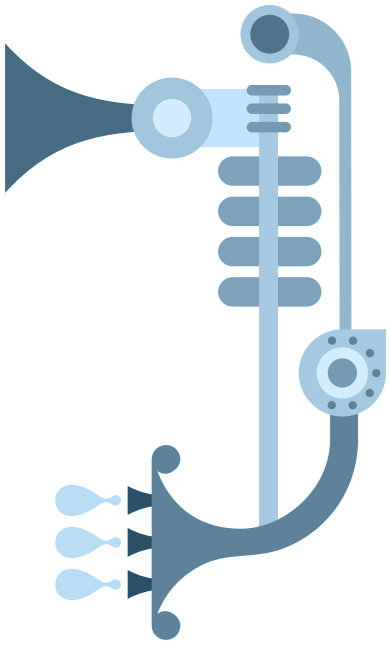
IMAGE: NYSF/GEOFF BURCHFIELD

IMAGE: NYSF/SANDRA MEEK

IMAGE: NYSF/SANDRA MEEK

IMAGE: NYSF/GEOFF BURCHFIELD





The Student Staff Leadership Program, in partnership with Outward Bound Australia, offered the 43 student staff trainees content that provides:

- an understanding of the NYSF and its history and philosophy;
- the responsibilities of being a student staff leader;
- the importance of planning and analysing a situation;
- handling specific tasks during the January NSYF sessions;
- leadership, professionalism and decision making;
- running NYSF orientation, and public speaking; and
- team-building.

Student Staff Leadership Program

The NYSF Student Staff Leadership training program consisted of group leadership activities, training sessions at Outward Bound Australia, with an intensive three-day trek, supplemented by a set of online modules. The result was a diverse group of eager young people working as a professional team, equipped for the thrilling and exhausting two weeks that are the NYSF.

The skills required for session fall into four key areas: communication, facing challenges, leadership, and initiative. These skills were not only instrumental to our success on session, but are also life-long skills.

Communication was required to effectively work alongside staff, partner organisations, and the students. The relationships formed with students not only gave us an insight into their lives, dreams, and ambitions, but this rapport enabled us to help them in their times of need, as they trusted us to assist them through challenges.

The emphasis on adaptability was paramount to our training; being able to face new challenges using old skills in a novel way. Group staff training was analogous to a tool kit of strategies, which we would build and add to.
The most memorable part of training for me was climbing a mountain as part of our trek with Outward Bound. I recall the debrief that evening, in which we all came to the conclusion that having climbed a literal mountain, we could well and truly conquer any metaphoric mountains hurled our way on session.

Training helped us grow into our roles as leaders and supporters on session; we realised that the best way to lead is alongside. Group training taught me the value of trusting in a team, as when each person fulfils their role in the team towards the one goal we achieved far more than we ever could do individually. Understanding my own and other's leadership styles enabled me to understand how members of my team operate, and hence work best with them. This applies to both my time on session, and in team settings since.

The training we undertook was one of the most formational experiences in my growth as a young adult. As a team we went from strength to strength, ensuring that session ran smoothly and that the experience for the students was the very best we could make it.

One concept we learnt through the Outward Bound training was the stages of functioning in a team: *forming, storming, norming, performing, and adjourning*. Coming together as a whole on our training occasions allowed us to push through the "forming, storming, norming" parts of building a successful team, so that by the time session came about we were prepped for "performing". This was followed ultimately by the sad reality of "adjourning" (or in our case mourning) the end of one of the greatest chapters in our lives.

Shoshana Rapley, NYSF 2014 and Student Staff Leader 2015

Communications Activities

Communicating the benefit of the NYSF programs to its stakeholders and the wider community as well as its funding partners is a key activity of the Communications Program.

As well as producing its corporate bi-monthly newsletter, NYSF Outlook, the annual report, promotional materials, articles and events, 2014–15 has seen an increase in strategic communication activities including:

- media coverage during the January Sessions;
- supporting students who are invited to conduct interviews with media outlets;
- increased use of and presence on social media, such as Facebook and Twitter;
- involvement in a joint production for a video developed by the Australian National University about the various science outreach activities it supports, including the NYSF;
- development on an NYSF video, filmed during the 2015 January Sessions;
- engagement with Inspiring Australia events, such as their NSW networking workshops;
- participation in the National Science Week ACT event, Science in ACTion 2014.
- Stories relating to many of these activities are available for review on the NYSF Outlook website – www. outlook.nysf.edu.au

IMAGE:NSYF/JULIE MAYNARD

National Science Week

NYSF alumni based in and around the Canberra region volunteered their time to participate in Science in ACTion at the Australian National University (ANU) in August. This two-day event that runs as part of National Science Week, celebrates and promotes the activities of local organisations involved in science and technology.

The NYSF hosted a stand at the event, and a number of local schools visited on the Friday, allowing the promotion of our programs to year 10 and 11 students and their teachers.

Saturday was community day, keeping NYSF volunteers busy demonstrating the very popular Van der Graaff generator and the Wimshurst machine, which were kindly loaned by the ANU Physics Education Centre.

The event attracted over 3,000 visitors over the two days.

IMAGE NYSF

Jeremy Smith from the ANU College of Engineering and Computer Science, who also works with Engineers Without Borders, accompanied Sachini Perera and David Steketee to a live interview with 666 ABC Canberra during Session C of NYSF 2015.


IMAGE AMANDA CALDWELL / NYSF


IMAGE SUPPLIED

Governors' Receptions

In 2014, five state and territory Governors and Administrators honoured NSYF students by hosting a reception at each Government House, to recognise the students' achievements in being selected for the program. Many students travelled a significant distance to attend these events.

The NYSF Reception was one of the last formal activities that outgoing long-time Governor of New South Wales, The Honourable Dame Marie Bashir AD CVO conducted before stepping down from the role. And in South Australia, it was one of the first official engagements of incoming Governor, His Excellency the Honourable Hieu Van Le AO.

Thanks also to Her Honour the Honourable Sally Thomas AC, Administrator of the Northern Territory, Lieutenant Governor, His Excellency The Honourable Justice Alan Blow in Tasmania, and His Excellency the Honourable Wayne Martin, AC, Administrator of the State of Western Australia.

Award and scholarship winners

A number of NYSF Alumni have received some of Australia's prestigious science awards and scholarships during 2014–2015.

Peter Doherty Awards

Queensland's Peter Doherty Awards for Excellence in Science and Science Education were awarded to five NYSF 2014 alumni from a total of 10 recipients.

The Awards are named after Professor Peter Doherty, a Brisbane-born Nobel Prize-winning scientist who was educated at Indooroopilly State High School and the University of Queensland. NYSF recipients in 2014 were Jackson Huang, Jordana Mladenovic, Lachlan Oberg, Rosalie Petersen, and Victoria Poon.

BHP Billiton Science and Engineering Awards

NYSF 2014 Alumni Jackson Huang from Queensland won first place in the 2015 BHP Billiton Science and Engineering Awards. These awards reward young people who have undertaken practical research projects, which demonstrate innovative approaches and thorough scientific procedures.

Jackson investigated the interactions between different heartburn drugs and how they might affect or weaken one another. He found that one combination of heartburn drugs involving magnesium hydroxide was more effective than another combination involving aluminium hydroxide.

Colombo Plan Scholarship

NYSF Alumna Ee-Faye Chong was awarded the Colombo Plan Scholarship to study in Asia and the Pacific in 2015. The scholarship valued at up to $65,000, allows each student to spend up to 12 months at an overseas university, with an optional further six months as an intern.

Tuckwell Scholarship

Five NYSF Alumni were selected from a total of 24 students for the Australian National Universities (ANU) 2015 Tuckwell Scholarships. The award provides $22,000 per year towards the students' studies at the ANU, as well as ongoing academic and career mentoring. Recipients in 2014 were Lachlan Arthur, Brody Hannan, Yaya Lu, Michael Turvey and Betrice Walker.

Young Australian of the Year Finalist

In 2015, NYSF 2014 Alumnus, Ethan Butson, was a finalist in the Young Australian of the Year Awards. Ethan created the SMART (Stroke Management with Augmented Reality Technology) system – a camera-based device that helps people overcome stroke and vision impairment. Ethan is also developing a new way to aid the treatment of cancer using radiotherapy with a device that can reduce the radiation dose delivered to a patient's skin. Named the National Australian BHP Billiton Science and Engineering Young Scientist a record three times, Ethan has represented Australia at the International Science and Engineering Fair on numerous occasions. In 2014, he won first place in the world for "best medical invention to aid humanity" for the SMART system.

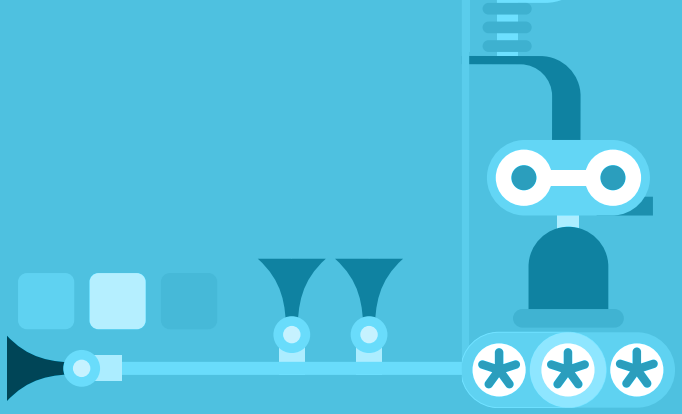
"It was amazing!! Thank you all so much for providing young Australian youth with such a great opportunity to connect with their inner science nerd and let it out at the NYSF.

Keerat Kaur Judge, NYSF 2015

"Every part of my two weeks in Canberra was enjoyable. Not only did I get to meet some of Australia's leading scientists, I also got to meet the upcoming ones too. I would like to thank all the behind the scenes staff at the NYSF as well as the staffies for making my time in Canberra so much fun. I do not think you truly understand how life changing this trip was to me. Please keep up the hard work because from my experience, it was worth it!"

Kellie Wilson, NYSF 2015

Alumni Testimonials



Liesl Folks
Alumna 1984

If you'd told young Liesl Folks at the 1984 inaugural NSSS (National Science Summer School) that one day she'd be the Dean of Engineering and Applied Sciences at a major American university she wouldn't have believed you. It certainly wasn't part of the plan. There wasn't one. "I've never had plans or expectations. I live in the moment. I have this mantra. You have to remember to say 'yes' to opportunity."

When Liesl was headhunted for the top job in engineering at the University at Buffalo (UB) it was a real surprise. "I kept saying you're crazy. Why would they even want me?"

There were many good reasons. It wasn't just her international reputation in the fields of nanotech and magnetism that elevated her above nearly 60 other candidates from around the world. Over time Liesl has acquired a diverse mix of industry and academic experience and built wide-ranging connections through government agencies, advisory panels and educational initiatives.

Her present trajectory actually began years before at the NSSS when the Perth native came to Canberra and visited the nuclear accelerator at the Australian National University (ANU). "Before I went to the Summer School I'd been thinking about doing chemistry but seeing the accelerator changed my mind." She was staggered not only by the raw power of the machine but also by the possibility of experimenting with sub-atomic forces.

Liesl went on to study physics (with honours) at the University of Western Australia and then completed a PhD there on permanent magnetic materials. She then moved to California to work on nanoparticle arrays at IBM's Almaden Research Center in California in 1998 and stayed in Silicon Valley for 15 years working in the hard disc drive business with both giants of the industry, IBM and Hitachi. Today she holds 14 US patents and is the frequently cited author of dozens of peer-reviewed research papers.

Her academic position in Engineering and Applied Sciences at UB does mean leaving all those bright, shiny machines behind, but it sounds as if Buffalo has plenty to offer. The historic city is going through something of a boom with millions invested and generous tax benefits for new start-up companies within a mile of the university. The University has had a huge uptake in students wanting a place in its Engineering program. Liesl has a new set of goals and top of the list is increasing the percentage of women studying engineering. It's currently hovering around the 20 per cent mark.

Liesl has a plan to market engineering differentially. She's currently trialling two streams of promotional information at a Buffalo high school and is hopeful that one of these will create more interest among females. She also sees the role of programs like the NYSF where students get to see an engineering operation or meet a scientist in the laboratory as absolutely critical. "I think it's almost a universal truth that no one ends up in engineering without having one of those experiences. If you don't open those labs up, and get those students in there to see what you're doing you won't get them to follow that trajectory"

As for this latest twist in her own life Liesl now seems right in her element.

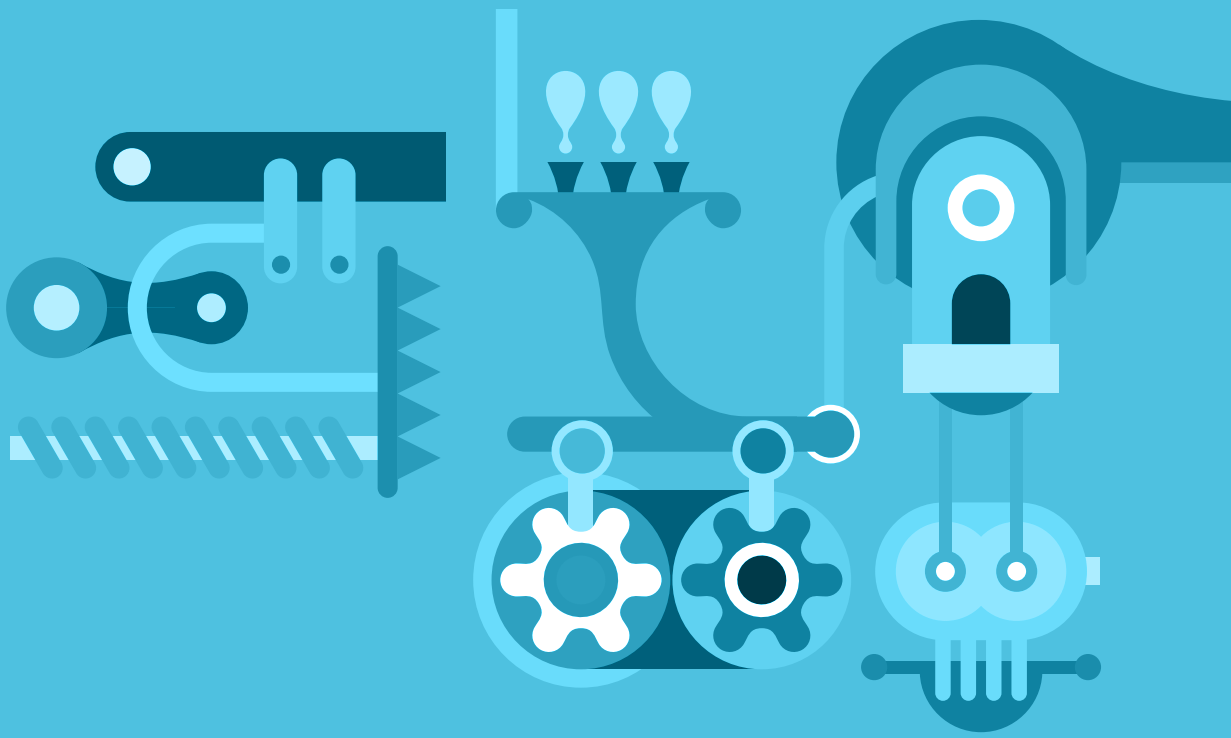
"It's been quite the change but in a good way. I love the fact that I go from working with a fantastic faculty, dealing with marvellous students, and hearing from alumni who all have these interesting stories and have grown great businesses. And just being back in a university community is fabulous too. You know you're interacting all the time with humanities, social sciences, medical sciences, whatever... just the diversity of things I get to do every day is very stimulating. I'm very happy."

Nim Weerakoon, Teacher of Steven Morgan, Alumnus 2015 Mount Austin High School Wagga Wagga, NSW

"Steven Morgan has always shown an interest in science and had a few sparks in junior school. When he came to my biology class, I could see that those sparks had turned into huge fires. He had a thirst for science and was curious about current inventions and cures.

I encouraged him to apply for the NYSF and I saw him mature through the application process. But nothing prepared me for the speech he gave in front of the whole school. That was the first time Steven had ever come up on stage in his six years of school. His speech was well prepared he spoke clearly and was able to hold the attention of 500 students and impressed every single teacher that day. For me that is what NYSF has produced – a leader.

His mind has been opened to endless possibilities and now has ideas for postgraduate research. Australia needs young scientists like him. Going to NYSF has changed the way he thinks and sees the world."



Clare Paynter Alumna 2009

Clare Paynter grew up in Darwin and attended the NYSF in 2009. She decided to move to the Australian National University to study Engineering and Arts. Clare graduated in 2014, and has recently moved to Melbourne to take up a three-year placement in the graduate program of the Australian Energy Market Operator (AEMO).

"The main reason I went to the ANU to study was because of what I saw and heard during the NYSF. I decided that I really wanted to study solar energy, and that grew from the exposure I had during the solar research lab visit at ANU during the NYSF."

She also remembers being taken on a site visit to Jindabyne where the students were shown the dam wall construction. "I continue to bore all of my friends with how it works when we go skiing. It started my desire to work in the energy industry and led me into my uni degree."

"I now have a 'grand plan' to work in Denmark on the large scale integration of wind power. But for now, I am loving my new role in Melbourne. And it was generated by my time at the NYSF."

Lochie Ferrier Alumnus 2014

Lochie Ferrier from Canberra (NYSF2014) attended the Center for Excellence in Education (CEE) Research Science Institute 2014 program as an NYSF International Program participant in July 2014.

The main purpose of the CEE RSI program is to allow students to conduct research in an MIT laboratory over a five-week period. Lochie worked in the Massachusetts Institute of Technology (MIT) Space Systems Laboratory (SSL), which he says perfectly matched his interests. He had applied to the program to do aircraft research, and ended up working on space technology. "This was an upgrade I could not have imagined," he said. The SSL works on small robots and satellites for use in the International Space Station and outside in low earth orbit. Lochie worked on the SPHERES project, which designs and flies small, ball-shaped robots that test complex technologies and manoeuvres such as 3D scanners or autonomous docking.

His research project was to develop a satellite identification system that could be used to reduce space debris. His final paper on the research was awarded as one of the top five papers in the program.

The RSI program includes lectures from leaders in science and other fields, with the opportunity to have dinner with the lecturer. Speakers included the Nobel laureates Wolfgang Ketterle, Phillip Sharp, and Tom Leighton, the founder of Akamai Technologies. In addition to exploring the MIT campus, trips were also made around Boston and Harvard University.

Lochie acknowledges the contribution from all of the people – family, friends, school, Rotarians and the NYSF – who supported his trip to MIT, and particularly the academics who supported his project. "I am especially thankful to Dr Alvar Saenz-Otero who mentored me in the MIT Space Systems Lab for the freedom he gave me in pursuing my project. And without the fantastic support of CEE and MIT, this program would not be possible."

IMAGE SUPPLIED

In 2014, Lochie was a finalist in the young innovators category of *The Australian* newspaper's Innovation Challenge awards, with the development of OASIS (Optical Autonomous Satellite Identification System) which followed on from his project at the RSI.

He has recently been accepted into the Massachusetts Institute of Technology to study Mechanical Engineering and Physics.

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