



National Youth  
Science Forum

# 2015–2016 Annual Report

[www.nysf.edu.au](http://www.nysf.edu.au)



[nysf.edu.au](http://nysf.edu.au)


   @NYSFoZ

IMAGE MOLLY STRANNEY

# Highlights for the NYSF in 2015-2016

**1150+**  
applicants



**600+**  
assessed suitable  
to attend  
the January  
sessions



**400**  
participants for the  
January Sessions



**21**

60+  
selection  
panels  
across  
Australia

Rotary districts

**20,000+**

volunteer hours by  
Rotary and Student Staff leaders

**196**  
January lab visits  
and site tours



**22**

Next Step  
visits in major  
partner centres

**59%**  
of participants were female



**42%**  
of participants  
came from remote  
and regional areas



Further information contact:  
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Manager, External Relations

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## Our Vision

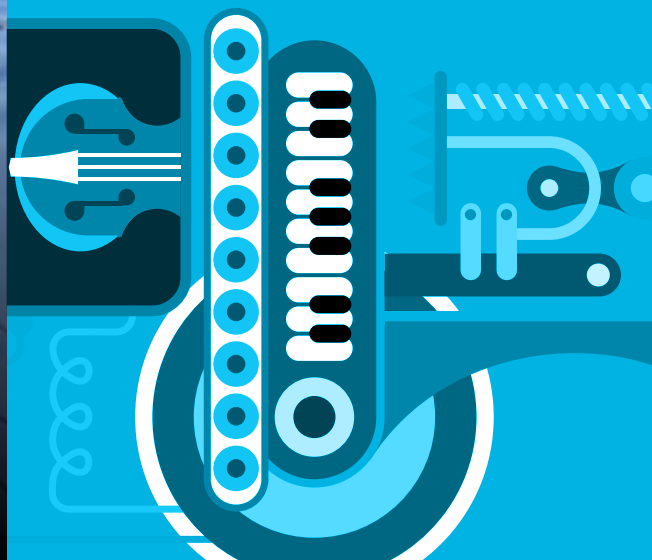
“To harness the potential of Australia’s youth by creating a science-literate and entrepreneurial community that can deliver leadership to secure Australia’s future”

## Our Mission

“NYSF influences national, social and environmental prosperity by delivering transformative STEM experiences to harness the potential of Australia’s youth to produce a science literate community”

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## Update from the Chair

With the adoption of a new constitution at last year's annual general meeting, the last twelve months has seen the National Youth Science Forum (NYSF) emerge as a forward-thinking organisation, looking to the future ... which is appropriate, as our flagship January Sessions focus on continuing the engagement of some of our most passionate and committed young Australians through to their own future study and careers in the science, technology, engineering and mathematics (STEM) fields.

Our constitutional change has seen the transformation to a leaner board model for governance, and an advisory council with wider membership, including – I am delighted to say – two representatives from the student staff leadership cohort for each preceding year. This inclusion of youth and the valuable insights they provide is vital to the organisation remaining relevant in a very crowded array of opportunities that are on offer to our youth today.

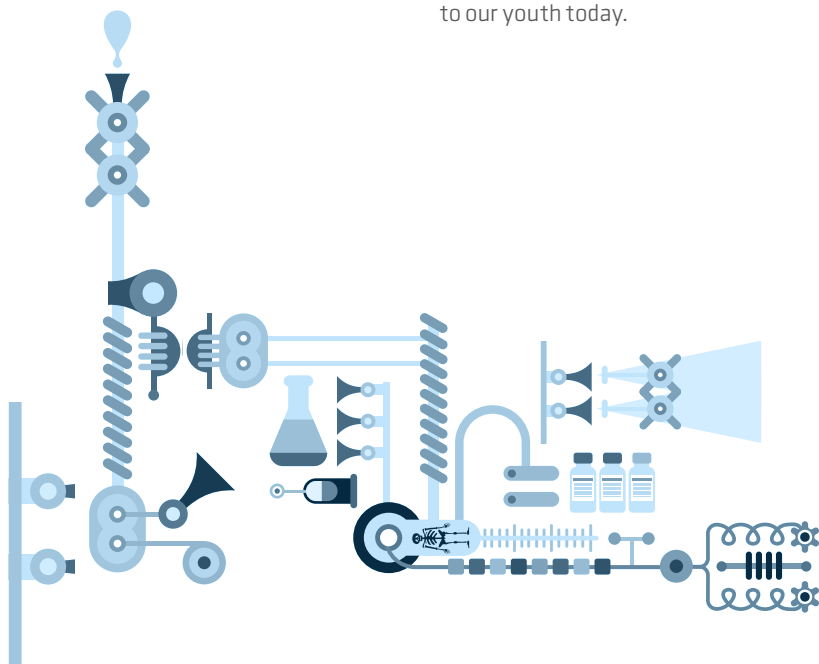
We continue to engage with the Australian business sector to negotiate partnership agreements with organisations that share our vision for developing a science-literate community and future job prospects. I thank the many organisations that support us – in particular Lockheed Martin Australia, Amgen Foundation, and CSL Ltd – for their vital financial support that helps us to bridge the gap in delivering the NYSF programs each year.

I would also like to thank my co-board members, and the Corporate team, for their hard work and support over the past year, as well as all of the many Rotarians and the student staff leaders who work throughout the year and during the January Sessions.

My involvement as Chair of the NYSF Board over the past two years has allowed me to talk with countless young scientists keen to make the most of their NYSF experience, to share with them my own experience of attending the National Science Summer School many years ago, as well as the many opportunities a science career has offered me. I always come away inspired and touched by the amazing young people who participate in the NYSF – it's wonderful to know that Australia's future will be enriched by their talent, dedication and passion for STEM.

There are some exciting new things in the wings for the NYSF in 2017, so please stay in touch and help us shape the future.

**Professor Tanya Monro, FAA, FTSE, FAIP, FOSA, GAICD**  
July 2016



## Update from the Chief Executive Officer



Here at the National Youth Science Forum (NYSF) we are relentlessly optimistic about the potential of the young people who come through our programs. Young Australians are the future of this country and their potential should be embraced and acknowledged. I would like to think that this is what drives the NYSF and its programs – developing our young people so that they can take the lead armed with appropriate skills, information and motivation.

In 2015–16, the NYSF has continued to refine and improve on its organisational and program operations. For our flagship January Sessions in 2016, we developed and successfully delivered a refreshed program of activities. Participants visited a number of new labs, site tours, and workshops – expanding on the existing program. Feedback from both participants and our lab visit/tour hosts has been extremely positive, and we look forward to continuing to assess critically our program on an ongoing basis, to continually improve our offerings.

We also welcomed an impressive group of teachers to the National Science Teachers Summer School (NSTSS), which also runs every January. Our teacher participants reported a high level of engagement and satisfaction in the activities we arranged, which are designed to invigorate the participants' passion for science, to engage them in a professional dialogue about teaching and learning, and to explore ways of engaging participants in STEM and to share

that knowledge. The NSTSS is a hidden gem of the NYSF, and I am honoured to be involved in its ongoing development.

We are truly fortunate to have the generous support of our funding partners from across government, corporate and industry sectors. For the 2015–16 reporting period, our three-year funding agreement with Lockheed Martin Australia as a major funding partner continued, and we re-signed agreements with CSL Ltd and Cochlear, through the Cochlear Foundation – both iconic Australian companies, whose support we are very proud to attract. In addition, this year, we attracted funding from international bio-technology company Amgen's philanthropy arm – the Amgen Foundation. This funding was administered as a grant from Give2Asia, as requested by the Amgen Foundation, and is the first time that funding has been provided in Australia through both of these organisations. These along with the other wide range of investments from all of our funding partners, are vital as they allow us to continue delivering high quality programs that have a positive impact on young people who have a passion for STEM in all of its applications.

The NYSF is a program run by young people for young people. Every year, I am impressed by the calibre of the young people who deliver the January Sessions. We once again teamed up with Outward Bound Australia, which provides our Student Staff Leadership team (Staffies) with a training program that develops the skills to assist us in delivering the January Sessions.

The Federal Government's release of the National Innovation and Science Agenda (NISA) in December 2015 brought into sharp focus some of the key issues relating to STEM skills for Australia's future workforce. There are a number of new

programs to be funded, and some ongoing, that will contribute to supporting our economy's future development. The NYSF welcomes this focus, particularly in supporting Australia's youth, and the professional development of teachers in this area. One estimate is that in the next decade, 75 per cent of jobs in the fastest-growing industries will need skills in STEM; we are therefore confident that programs such as the NYSF's will continue to be a positive influencer in the field.

In December 2015, the NYSF was privileged to receive an invitation to participate in PwC's 21st Century Minds (21CM) Accelerator Program. The NYSF is one of only 20 organisations from around the country selected to take part in the initiative, which aims to support the accelerated development of programs and groups undertaking a wide range of STEM support activities. The NYSF has been using the opportunity to develop further its strategic planning for future expansion of our programs with the help of local mentor teams from PwC, as well as working on networking with the other like-minded organisations to build linkages and learn from their experiences.

The work of an organisation such as the NYSF is not possible without the countless volunteer hours provided by our Rotary friends and other community members across the country, our volunteer student staff leaders, our lab visit and tour providers, and of course, our Board members, whose commitment, dedication, skills and experience continue to inspire and support the work of our corporate team, located in Canberra.

In this third year as CEO of the NYSF, I can truly say that it is a pleasure to lead such a vibrant and contemporary organisation.

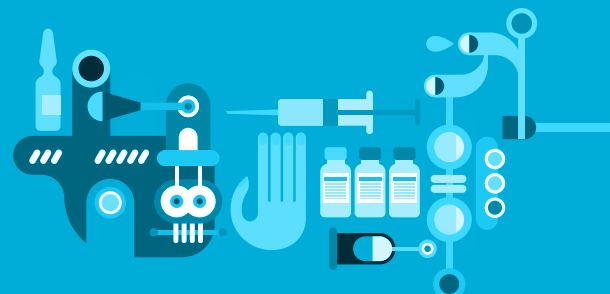
**Dr Damien Pearce**  
May 2016



IMAGE TS PHOTOGRAPHY

**“It was an amazing experience and truly broadened my horizons — before coming to NYSF I was really unsure of what to do after school, and the prospect of the HSC and university was intimidating. However, after having experienced NYSF, not only do I feel far more confident about my future, I feel far less stressed about what comes next — and more determined to succeed academically than I was previously. Not only that, I have made plenty of new, like-minded friends, who I hope to stay in contact with for years to come.”**

Maya St-Jean NYSF 2016,  
Salamander Bay, New South Wales.



## What is the National Youth Science Forum?

Potential participants submit an Expression of Interest to participate in the NYSF, with applications opening on 1 March and closing 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.

Participants are selected based not just on their academic achievements, but also on other interests, and their social and communication skills. During the NYSF January 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.

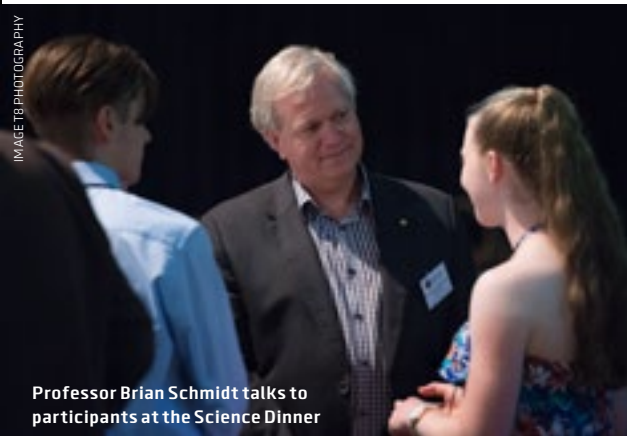
Expressions of Interest are processed via the student's local Rotary club, which decides whether to endorse them to the relevant Rotary District selections for the NYSF. Positions are competitive, and Rotary District NYSF Committees conduct an extensive selection process to determine who will succeed in gaining a place at the NYSF residential program the following January.

Participants are often supported by Rotary clubs in their fundraising activities to cover the cost of attending NYSF programs.

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.



Professor Brian Schmidt talks to participants at the Science Dinner





IMAGE MELANIE HACEY



IMAGE XINYUSHI

### What are the benefits of the NYSF?

An independent survey of NYSF Alumni 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 participants selected?

Potential participants submit an Expression of Interest to participate in the NYSF, with applications opening on 1 March and closing on 31 May each year.

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In 2015-16, 42 per cent of participants came from remote and regional areas of Australia, reflecting the national reach facilitated by Rotary's engagement in the program. Fifty-nine per cent (59%) of participants in NYSF 2016 were young women.



IMAGE GEOFF BURCHFIELD



## Our Partners

Rotary Clubs have been involved in the NYSF from the program's beginning, and continue to support it through endorsing students every year. Rotary clubs may assist successful participants financially towards the cost of attending the NYF, or help with fundraising.

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

Volunteer adults, often Rotarians, are invited to participate in the January Sessions providing pastoral care, and the local Rotary district helps to facilitate home hospitality stays for participants at key points in the January Sessions.

*“Rotary mum and dad were the most lovely and helpful people at all hours – caring for my friend with the sore knee I noticed how necessary and effective their role was in dealing with injuries and mishaps.”*

Meghan Davidson NYSF 2016,  
Perth, Western Australia.

### Funding Partners

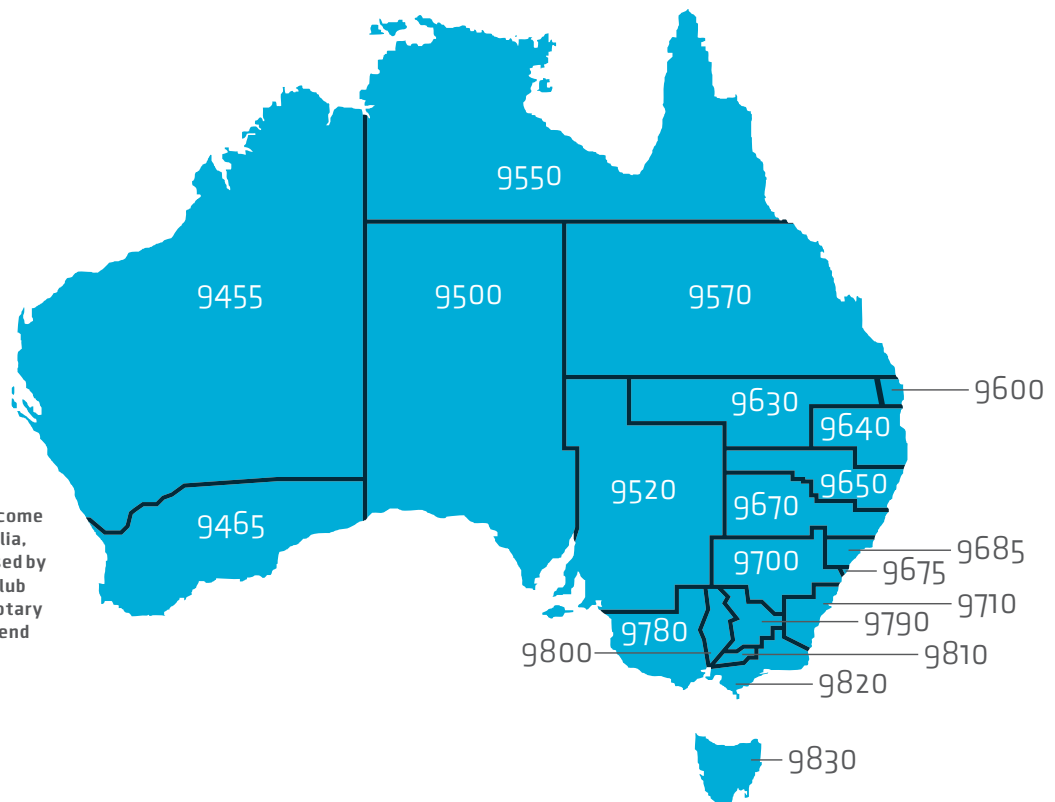
NYSF program funding is sourced from a wide range of partners.

Our industry partners are organisations that have an interest in and commitment to the development of young people who want to continue their education and careers in STEM fields.

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 continued to support the NYSF in 2015-16.

New partners are being sought on a regular basis, and are categorised broadly as major partners, and supporting partners. For information about becoming a funding partner of the NYSF, contact [nysf@nysf.edu.au](mailto:nysf@nysf.edu.au) or call the office on 02 6125 2777.

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



## 2016 Partners

Information about our Partners can be found on our corporate website at [www.nysf.edu.au/partners](http://www.nysf.edu.au/partners).





From Left Andrew Metcalfe AO, James Palmer, Chair, Tanya Monro, Raydon Gates, Lockheed Martin, Rowley Tompsett

## Governance

The National Science Summer School, now trading as the National Youth Science Forum, was incorporated in 1984. At the Annual General Meeting in August 2015, a new Constitution was adopted.

The key characteristics of the new Constitution includes:

- An amendment to the broad purpose of the NYSF, to foster the uptake in STEM across all Australian young people by providing structured programs that inform, engage and enthuse young people about rewarding and diverse career pathways that flow from the study of STEM. This is a development from the historic focus on Year 11 students who are about to enter Year 12 of their studies.
- Streamlining of governance arrangements where the members of the Council act in an advisory capacity to a Board of Management. The Board of Management was formed to oversee the operational affairs of the NYSF.
- Expanding the Council membership to include the NYSF Student Chief-of-Staff from each NYSF January session held in the immediately preceding January.
- A provision for other like-minded organisations, upon invitation, to be represented on the Council.

- A revised Board composition – it now consists of a maximum of eight non-executive directors which, along with the office bearers (Chair, Deputy Chair, Finance Director and Secretary) also includes a nominee director from Rotary and an Alumni representative.

The membership of the Council consists of representatives from major scientific organisations, namely, one nominee of:

- Australian Academy of Science;
- Australian Academy of Technological Sciences and Engineering (ATSE);
- The Australian National University (ANU);
- University of Canberra (UC);
- Commonwealth Scientific and Industrial Research Organisation (CSIRO);
- District Governor, Rotary International, District 9710;
- Rotary International Institute Zone 8;
- The major sponsoring organisation of the National Science Summer School for the current year as determined by the Council.

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.

### Board of Management

Chair

[Professor Tanya Monro](#)  
FAA FTSE FOSA FAIP GAICD

Deputy Chair

[Andrew Metcalfe AO](#)

Secretary

[Rowley Tompsett](#) CRLSS, AMICDA, JP

Finance Director

[James Palmer](#)

NYSF Alumnus representative

[Dr Renee Kidson](#) psc(j)

Rotary Liaison Officer

[Rob Woolley](#)

Chief Executive Officer

[Dr Damien Pearce](#)

### Council Members

ANU Representative

[Professor John Close](#)

NYSF 2015 Student Chief of Staff  
Session A

[Steven Falconieri](#)

NYSF 2015 Student Chief of Staff  
Session C

[Amy Norman](#)

Rotary District Governor 9710

[Monica Garrett](#)

Australian Academy of Science

[Professor Jenny Graves](#) AO FAA

CSIRO

[Mary Mulcahy](#)

University of Canberra

[Assistant Professor Alison Shield](#) FHEA

Australian Academy of Technological  
Sciences and Engineering (ATSE)

[Professor Robin Stanton](#) FTSE

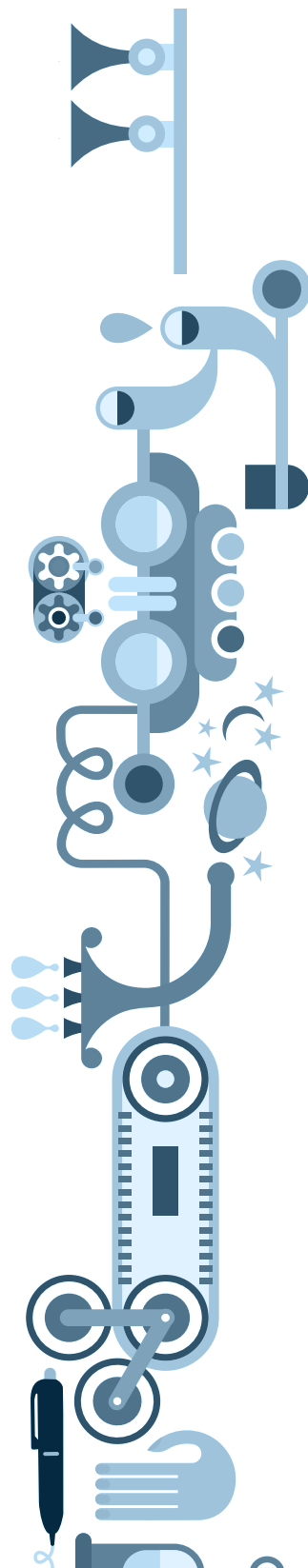
## Financial report

### National Science Summer School Incorporated 99-478 516 183

#### Statement of Profit or Loss and Other Comprehensive Income For the Year Ended 31 March 2016

	Note	2016 \$	2015 \$
Revenue	4	2,249,718	1,803,446
Accommodation		(145,270)	(176,997)
Advertising		(1,281)	(23,284)
Audit		(8,343)	(8,700)
Bad and doubtful debt		(2,277)	-
Contractors		(33,248)	(30,000)
Depreciation expense		(7,042)	(7,089)
Entrance fees		(173,213)	(58,342)
Minor equipment replacement		(5,999)	(4,096)
Fundraising		-	(32,000)
Insurance		(27,223)	(14,848)
Leadership cultural program		-	(30,000)
Legal fees		(12,772)	(4,453)
Meals		(229,289)	(246,478)
Merchandise		(70)	(329)
Office and administrative expenses		(79,285)	(119,910)
Other expenses		(42,718)	(32,980)
Program expenses		(41,010)	(1,040)
Salary and other employee entitlements		(548,903)	(497,232)
Superannuation contributions		(48,781)	(44,605)
Training		(59,479)	-
Travel		(350,108)	(388,299)
<b>Surplus for the year</b>		<b>433,415</b>	<b>83,384</b>
<b>Other comprehensive income for the year, net of tax</b>		<b>-</b>	<b>-</b>
<b>Total comprehensive income for the year</b>		<b>433,415</b>	<b>83,384</b>

The accompanying notes form part of these financial statements.

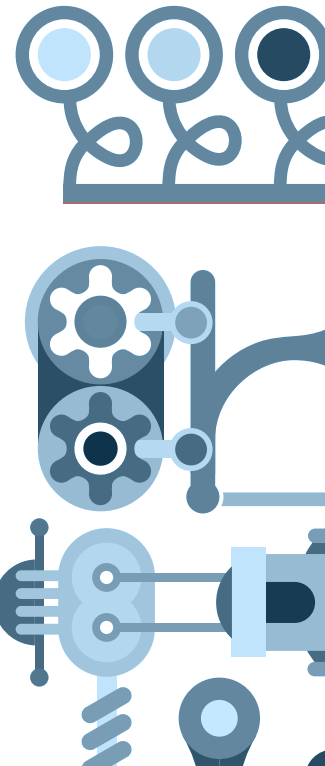


**National Science Summer School Incorporated**  
99 478 576 183

**Statement of Financial Position**  
**As At 31 March 2016**

	Note	2016 \$	2015 \$
<b>ASSETS</b>			
<b>CURRENT ASSETS</b>			
Cash and cash equivalents	5	1,187,602	747,094
Trade and other receivables	6	65,686	36,562
Other assets	7	5,569	58,302
<b>TOTAL CURRENT ASSETS</b>		<b>1,258,857</b>	<b>841,958</b>
<b>NON-CURRENT ASSETS</b>			
Property, plant and equipment	8	7,154	13,516
<b>TOTAL NON-CURRENT ASSETS</b>		<b>7,154</b>	<b>13,516</b>
<b>TOTAL ASSETS</b>		<b>1,266,011</b>	<b>855,474</b>
<b>LIABILITIES</b>			
<b>CURRENT LIABILITIES</b>			
Trade and other payables	9	136,385	66,656
Employee benefits	10	59,338	97,737
Other liabilities	11	101,287	151,830
<b>TOTAL CURRENT LIABILITIES</b>		<b>297,010</b>	<b>316,223</b>
<b>NON-CURRENT LIABILITIES</b>			
Employee benefits	10	-	3,695
<b>TOTAL NON-CURRENT LIABILITIES</b>		<b>-</b>	<b>3,695</b>
<b>TOTAL LIABILITIES</b>		<b>297,010</b>	<b>319,918</b>
<b>NET ASSETS</b>		<b>969,001</b>	<b>535,556</b>
<b>EQUITY</b>			
Retained surplus		969,001	535,556
<b>TOTAL EQUITY</b>		<b>969,001</b>	<b>535,556</b>

The accompanying notes form part of these financial statements.



## National Science Summer School Incorporated

99 478 516 132

### Council's Report For the Year Ended 31 March 2016

The Council of National Science Summer School Incorporated (the Association) submit their report for the year ended 31 March 2016.

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 2016 and the results and cash flows of the Association for the year ended on that date.

#### Directors

The names of the directors in office at any time during, or since the end of, the year are:

Names	Position	Appointed/Resigned
Professor Tanya Monro	President	
Mr. Andrew Metcalfe AO	Deputy Chair	Appointed: 07/08/2015
Mr Rowland Tompsett	Secretary	Appointed: 03/08/2015
Mr James Palmer	Finance Director	Appointed: 22/09/2015
Dr Renee Kidson	NYSF Alumnus representative	Appointed: 03/08/2015
Mr Rob Woolley	Rotary Liaison Officer	
Dr Damien Pearce	Chief Executive Officer	
Professor Robin Stanton	ATSE representative	
Dr Alison Shield	University of Canberra representative	Appointed: 02/12/2015
Ms Amy Norman	NYSF 2015 Student Chief of Staff	Appointed: 03/08/2015
Mr Steven Falconieri	NYSF 2015 Student Chief of Staff	Appointed: 03/08/2015
Professor Jenny Graves	Australian Academy of Science representative	
Professor John Close	ANU representative	
Ms Monica Garrett	Rotary District Governor 9710	Appointed: 01/07/2015
Ms Mary Mulcahy	CSIRO representative	Appointed: 18/05/2015
Mr Adam de Toth	Secretary	Resigned: 03/08/2015

Directors 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 about 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 \$ 433,415(2015 surplus: \$ 83,384).

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

Council Member: \_\_\_\_\_

Dated 22 July 2016

Council Member: \_\_\_\_\_



**National Science Summer School Incorporated**  
99 478 016 180

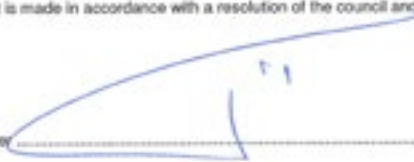
**Statement by Members of the Council**

In the opinion of the council the financial report as set out on pages 2-15 :

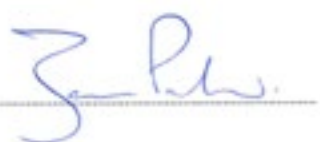
1. Presents fairly the financial position of National Science Summer School Incorporated as at 31 March 2016 and its performance for the year ended on that date in accordance with Australian Accounting Standards (including Australian Accounting Interpretations) of the Australian Accounting Standards Board.
2. At the date of this statement, there are reasonable grounds to believe that the 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 council and is signed for and on behalf of the council by:

Council Member



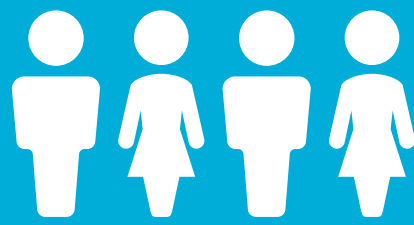
Council Member



Dated 22 July 2016

# NYSF year-round highlights 2015-2016

The NYSF year is a continuous cycle of program delivery, development and evaluation. Highlights for NYSF in 2015-2016 are:



## April

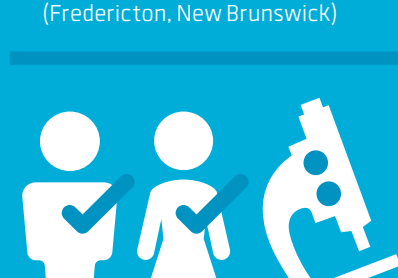
- Next Step 2015 Melbourne
- Next Step 2015 Brisbane

## May

- Expressions of Interest for National Youth Science Forum 2016 closed
- **International Program:**
  - 2015 Canada-Wide Science Fair (Fredericton, New Brunswick)

## June

- Rotary student selections for January 2016 commence
- **International Programs:**
  - 2015 Research Science Institute (Boston, USA)
  - 2015 International Science Summer Camp Heidelberg (Germany)
  - 2015 National University of Singapore Science Summer Camp



## July

- Next Step 2015 Sydney
- Next Step 2015 Canberra
- **International Program:**
  - 2015 London International Youth Science Forum
- 2016 Student Staff Leader Training

## August

- Rotary student selection for January 2016 completed
- National Science Week 2015



## September

- 2016 Student orientations
- Governors' Receptions held in New South Wales, South Australia, Tasmania & Western Australia





## October

- Launch – NYSF 2016 Program
- Governor’s Reception in Queensland and Chief Minister’s Reception Northern Territory



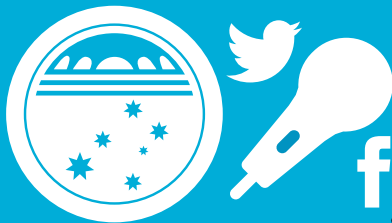
## November

- International Program: – 2015 Stockholm International Youth Science Seminar (Sweden)



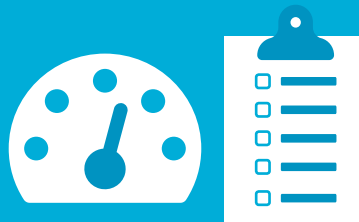
## December

- Student Staff Leaders arrive
- Final preparations for National Youth Science Forum 2016
- NYSF selected for PwC 21C Minds Accelerator Program



## January

- National Youth Science Forum 2016
- National Science Teachers Summer School 2016
- Partners’ Day 2016
- Media activities



## February

- National Youth Science Forum evaluation and surveying commences
- Planning for International, Next Step and Student Staff Leadership Programs



## March

- Expressions of Interest open for 2017 National Youth Science Forum program
- Applications open for International Programs
- World Science Festival Brisbane 2016



IMAGE: JULIE MAYNARD

**“Before attending the NYSF, I had my sights set on a career in medicine. After the NYSF I found that my passion lay in all sorts of different areas of science. Seeing 200 fellow participants light up at the same things I did was truly the most staggering part of all. NYSF clarified perfectly my love of science and desire to pursue it to my heart’s content.”**

Morgan Kikkawa NYSF 2016,  
Bonython, Australian Capital Territory.

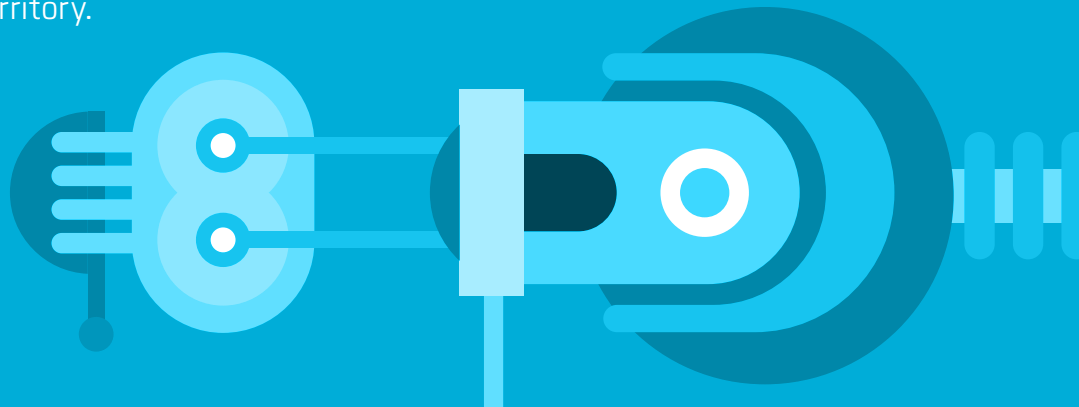




IMAGE JULIE MAYNARD



IMAGE JULIE MAYNARD



IMAGE AMANDA CALDWELL

## NYSF 2016 January Sessions

The NYSF 2016 January Sessions offered a refreshed program that focused on three central ideas: engaging with STEM in action; understanding the role of STEM in society; and preparing the next generation of STEM professionals. Students participated in a number of new labs, site visits and workshops based on these three concepts.

Participants were welcomed at both sessions by NYSF alumna and Chair, Professor Tanya Monro, Deputy Vice-Chancellor Research and Innovation at the University of South Australia, at the Opening Ceremony at Parliament House. Representatives from the local community also spoke, welcoming the participants to Canberra.

Key program highlights included:

*Ethics in STEM:* Session A participants heard from the ANU's Dr Janette Lindesay, on the ethics of climate change. The Session C ethics workshop was presented by Professor Shari Forbes from the Centre for Forensic Science at the University of Technology Sydney and delved into her work in forensic research at Australia's first body farm as a point of reference.

*Entrepreneurship:* The issues relating to being an entrepreneur were discussed by an expert panel of business men and women from the ACT region – thanks Inspiring ACT and CBR Innovation Network – who explained their experiences and some of the challenges they had to overcome in starting and building their own business from the start. A facilitated workshop then gave the participants an opportunity to develop and “sell” a product.

*Diversity in STEM:* This seminar focused on some of the challenges in ensuring women and other minorities are represented in top STEM positions.

*Critical thinking:* Skills to critically analyse information were tackled through an interactive discussion in the Critical Thinking seminar.

Lab visits and site tours:

In total, 196 site and lab visits were conducted over the course of the two NYSF 2016 January Sessions. Our thanks to The Australian National University, our host university in Canberra, as well as the many other facilities that hosted our student visits during the program.

New to the program was a visit to the iconic The National Film and Sound Archive where participants learned the science behind audio-visual preservation.

Major partner Lockheed Martin Australia hosted four groups at their NextGen Cyber Innovation and Technology Centre.

Participants visited the Australian Microscopy and Microanalysis Research Facility to learn about the impact and lifecycle of the malaria parasite, spent an afternoon at the Bungendore veterinary clinic, visited the Molonglo Observatory Synthesis Telescope, explored the ANU's Nuclear Physics Department's electron accelerator, visited Icon Water to learn about the Canberra region's water supply, listened to inspiring story's about NASA astronauts at the Canberra Deep Space Communications Complex, developed Artificial Intelligence skills at the ANU College of Engineering and Computer Science, learned how to solve crime through forensic science and participated in a live video conference with CERN, the European research organisation that operates the largest international particle physics research collaboration.

There was also time for socialising and networking at the two Science Dinners. The ANU's recently appointed Vice-Chancellor and Nobel Prize winner Professor Brian Schmidt addressed the participants of Session A on his "three big questions" while Dr Ranjana Srivastava, author, academic and oncologist addressed the participants of Session C about the personal and clinical challenges of caring for patients with cancer.

Session C Rotary Dinner guest speaker featured 1988 alumni Dr Subho Banerjee, Deputy Secretary at the Department of Education and Training. Subho asked the participants to consider the roles of excellence, boldness, contribution and kindness in their futures. At Session A's Rotary Dinner, Dr Heather Bray (alumna 1987) a Senior Research Associate at the University of Adelaide reflected on her career to date, taking her from research scientist to science communicator to researcher again. She also raised the issue of mental health in academia in an inspiring speech.



### Partners' Day

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

In 2016, 15 NYSF funding partners made 16 presentations at Partners' Day, and participated in the Expo Display, offering unique insights about their companies, their fields of operation and expertise, and their experiences.

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

**"The NYSF allows you to meet scientists and engineers from a large variety of occupational backgrounds and meet many like-minded people,"**

Eva Kettle, NYSF 2016

**"I found that personal interaction with scientists was far more engaging than sitting watching a lecture. I did enjoy the presentations but the one-to-one talking like Partners' Day and Speed Date a Scientist was far by the best,"**

Lorraine Rosson, NYSF 2016

**"I really enjoyed Partners' Day and think that was very helpful to us,"**

Aleesha Caldwell, NYSF 2016

Lockheed Martin Australia has supported the National Youth Science Forum (NYSF) as a major funding partner since January 2015. More than 2,350 young Australians applied to attend the NYSF in 2015 and 2016, with places available for 400 participants per year of January Sessions (800). In that time, the Lockheed Martin Australia's NextGen Cyber Innovation and Technology Centre in Canberra has hosted January site visits for over 100 participants interested in going on to study engineering and/or physics at a tertiary level, with an additional 20 visiting as part of the NYSF Next Step program.

Lockheed Martin Australia's Chief Executive, Raydon Gates, addressed the NYSF participants at the Opening Ceremony, Parliament House, January 2015, and Session A, Science Dinner, January 2016. Ms Nicole Seils, Head of Government Relations addressed the Session C, Science Dinner in January 2016, and Ms Laura Frank, then Chief Operating Officer, addressed the Session C Science Dinner in January 2015 and participated in our panel discussion on issues affecting women in STEM careers.

Presentations were made to participants in the NYSF by Lockheed Martin Australia staff at the NYSF Partners' Days in January 2015 and 2016.

In addition, our relationship with Lockheed Martin facilitated a visit for 65 students to the Victorian Science Space Education Centre in Melbourne, as part of the NYSF 2015 Melbourne Next Step program.

**LOCKHEED MARTIN**



## National Science Teachers' Summer School 2016

The week-long National Science Teachers Summer School (NSTSS) is held in conjunction with week two of the January Sessions Session A. Conducted by the NYSF with support of the Australian National University, it aims to re-enthusiast participants about their science teaching, and expose them to cutting edge science.

This year, Professor Elanor Huntington, Dean of The Australian National University (ANU) College of Engineering and Computer Science welcomed participants to the 2016 program in her opening address.

Workshops were delivered by

- Associate Professor Graham Hardy, School of Education, University of South Australia who addressed Science as a Human Endeavor and Inquiry Based Learning
- Professor Shari Forbes from the University of Technology Sydney, focussed on interdisciplinary learning
- Dr Joseph Hope ANU, presented on Quantum Physics and Flip Teaching

The teachers also

- participated in a hands-on engineering project led by Engineers Without Borders at the ANU College of Engineering and Research School of Computer Science
- visited Canberra's Deep Space Communications Complex at Tidbinbilla
- listened to Professor Denis Goodrum, representing the Australian Academy of Science, who demonstrated the Science by Doing online resource for teachers, and
- watched as Mischa Andrews from Nova, demonstrated the Science for Curious Minds online resource – another Australian Academy of Science initiative
- attended social events including the NYSF 2016 Science Dinner and tour of the Mt Stromlo Observatory and a barbeque under the stars.

NYSF acknowledges the support of the ANU, University of Canberra, CSIRO, Australian National Insect Collection, Questacon, the National Arboretum, Canberra Deep Space Communication Network, Mt Stromlo Observatory, Australian Parliament House, Geoscience Australia and Geoff McNamara from Melrose High School for running seminars, workshops and lectures.



## April-July 2015

### Next Step

From March to July each year, the NYSF offers a program of events across Australia for participants who have participated in the January Sessions. These 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 participants, 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. Participants from the January Sessions are encouraged to participate in as many of these Next Step events as possible through the year.



IMAGE MADELINE COOPER

### Highlights

#### Next Step Melbourne April 2015

Participants visited NYSF partners CSL, GSK, Monash University, The University of Melbourne, as well as the Walter and Elizabeth Hall Institute (WEHI) and the Victorian Space Science Education Centre (VSSEC).

#### Next Step Brisbane April 2015

Participants visited the Queensland Institute of Medical Research, The Edge at the State Library of Queensland, The Museum of Queensland, Tritium Engineering, the Pharmacy Australia Centre of Excellence and partner, The University of Queensland.

#### Next Step Sydney July 2015

Participants visited partners Cochlear, ResMed, ANSTO and the University of New South Wales, and the National Acoustic Laboratories and Sydney Observatory.

#### Next Step Canberra July 2015

Participants visited NYSF Partner Lockheed Martin Australia and IBM's Linux Development Labs, as well as The Australian National University.

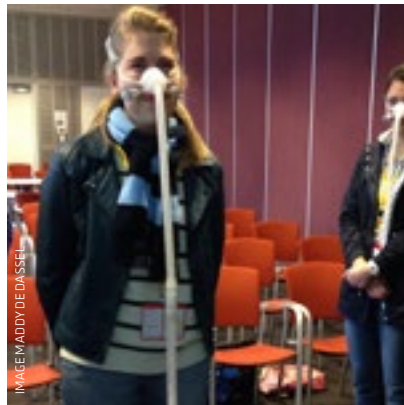


IMAGE MADDY DE DASSEL

## June-August 2015

### Selections

Rotary NYSF District Chairs across the country worked with their committees to interview and select 400 participants to attend the NYSF 2016 January Sessions.

Participants are selected based on their ability to demonstrate a genuine interest in STEM, and are open to new ideas. Consideration is also given to whether the participant will benefit from attending the program, whether they are already working toward a STEM career, and whether they give back to the NYSF and the wider community.



IMAGE MADELINE COOPER

## July 2015

### Student Staff Leadership Training

True to the focus on youth and leadership development, the January Sessions are facilitated by past NYSF participants 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 leaders 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.



CREDIT IS IMAGE OF

## May-December 2015

### International Programs

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 Kingdom and Singapore.

These relationships allow NYSF participants to participate in a number of programs during the year that they attend the NYSF. If they are interested, participants 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 participants to participate in these programs, representing the NYSF and the future of Australian science, engineering and technology.

### Highlights

#### Canada-Wide Science Fair (CWSF), Fredericton, New Brunswick, Canada – 10-17 May 2015

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 participants are invited to the CWSF as ambassadors for Australian science and while in the host city, they visit local primary and high schools, talking to the participants about science in Australia in general. In 2015 the CWSF was staged in Fredericton, New Brunswick, Canada.

*"The Canada-Wide Science Fair has given me a unique opportunity to build a diverse network with scientists and engineers of my generation. The chance to develop these interpersonal relationships is undoubtedly one of the most important advantages granted by the NYSF International Program."*

Michael Manoussakis, NYSF 2015, Mill Park, Victoria



IMAGE CHERYL CHAN



**Research Science Institute (RSI)  
Boston, United States of America –  
20 June–2 August 2015**

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.

*"RSI gave me the opportunity to perform high-level research in the field of my choice in robotics. Specifically, I worked in the Space Systems Lab on a new addition to the SPHERES project, an experimental micro-satellite for testing within the International Space Station,"*  
Elijah Stanger-Jones, NYSF 2015, Dubbo, New South Wales.



**National University of Singapore  
Science Summer Camp (NUS SSC),  
Singapore, 28 June–4 July 2015**

The National University of Singapore (NUS) annual science summer camp program offers an inspiring series of lectures and laboratory sessions conducted by experienced university professors, which will help participants to discover their passion and potential in the field of science and technology. In 2015, NYSF sent six participants to the camp, which included visits to NUS's state-of-the-art research centres for experiential learning in a supportive and intellectually stimulating environment. This program provides an excellent opportunity to interact and network with participants from various countries and make new friends in the Asia region, as well as experience tours and excursions to top tourist destinations in Singapore.



“The most exciting thing for me would definitely have to be experiencing university life and a taste of different fields of sciences presented by international professors. My passion for science and desire to pursue this at university was only further consolidated. I absolutely loved everything about Singapore and the university itself, and cannot wait to return there on exchange as a university science student.”  
Madeline Meagher, NYSF 2015, Anna Bay, New South Wales.

**International Science Summer School Heidelberg (ISH) Germany, 19 June–16 August 2015**

Similar to the US program, the ISH is a research-based program that runs for four weeks. The three Australian participants 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 participants join participants from Europe, Asia and North America for the program.



IMAGE: JENNIFER HUNG

“The program has definitely left its mark on my life. It has shown me what a career in academia and science can achieve. I have made a group of close friends from around the world, and I know that if I’m ever in their neighbourhood, I can always come around and say hi.”  
Jonah Hansen, NYSF 2015, Loxton, South Australia.

**London International Youth Science Forum (LIYSF), London, United Kingdom, 21 July–6 August 2015**

The LIYSF has been running for more than 50 years and attracts over 300 participants from almost 60 countries for a single two-week session. In 2015, the NYSF sent 24 participants representing Australia. Hosted by Imperial College in South Kensington, the participants 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.

“The science would have been enough, but on top of that I met so many amazing people and am now a part of a massive network. The life experience that I gained at the LIYSF is indispensable and I feel honoured to call myself a part of such an amazing and inspirational group of people, a group that I am sure I will stay in contact with for a very long time.”  
Vivienne Wells, NYSF 2015, Mount Collins, New South Wales.

**Stockholm International Youth Science Seminar (SIYSS), Stockholm, Sweden, 21 November–5 December 2015**

The SIYSS is centred on the presentation in December each year of the Nobel Prizes for Science. Not surprisingly only a small number of international participants 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.

“One of the most interesting things about the trip was the depth of knowledge and the diversity of interests between my fellow participants. The second was the unique experience of interacting with the Nobel Laureates at the Nobel Reception. Their willingness to engage with youth interested in pursuing science was very humbling.”  
Tammy Cai, NYSF 2015, Sefton, New South Wales.

## September-October 2015

### Orientations

Orientation sessions are organised by Rotary districts across the country prior to participants attending the NYSF. They are a valuable opportunity for participants and families to meet some of the other participants attending the January Sessions, and to learn about some of the activities they will do in January.

### Governors' Receptions

In 2015, six state and territory Governors and Administrators honoured NYSF participants by hosting a reception at each Government House, to recognise the participants' achievements in being selected for the program. Many participants travelled a significant distance to attend these events.

The gathering also provides the NYSF with the opportunity to express our thanks and gratitude to the countless Rotarians that select the young people to attend the NYSF each year.



## October 2015

### Launch

The NYSF launched the 2016 program in October at The Australian National University, where the Board's Deputy Chair, Mr Andrew Metcalfe AO, represented Chair, Professor Tanya Monro, and welcomed special guest speakers Professor Ian Young, outgoing Vice-Chancellor of the ANU and Ms Laura Frank, Vice-President and Chief Operating Officer of Lockheed Martin Australia – a major sponsor of the NYSF.

Both expressed significant support for the program and its unique role in offering year 12 participants with insights and opportunities to discuss their possible future study and career choices.

Professor Young noted that there has never been a more important time for Australia to grow the ranks of science, technology, engineering and maths (STEM) graduates. "STEM occupations are at the leading edge of economic competitiveness in an increasingly globalised world, and STEM workforces of sufficient size and quality are essential for any 21st century economy to prosper."

"The Forum is a fantastic way to achieve these aims, enabling later year high school participants to sample the academic opportunities that are available to them in the STEM field," he said.

Ms Frank said that Lockheed Martin Australia was proud to support STEM education initiatives, like the National Youth Science Forum. "We are proud to support the NYSF and ensure that young Australians – including young men and women from diverse backgrounds, living in both urban and remote areas – will have access to participate for many years to come."

Ms Frank also had some valuable advice to share with NYSF participants, having started her own career as a young and eager engineering graduate. "Take risks, grow your network, and broaden your view."

The NYSF has an agreement with Lockheed Martin Australia to support the organisation and its activities from 2015-2017.



## Celebrating science and connecting with the community

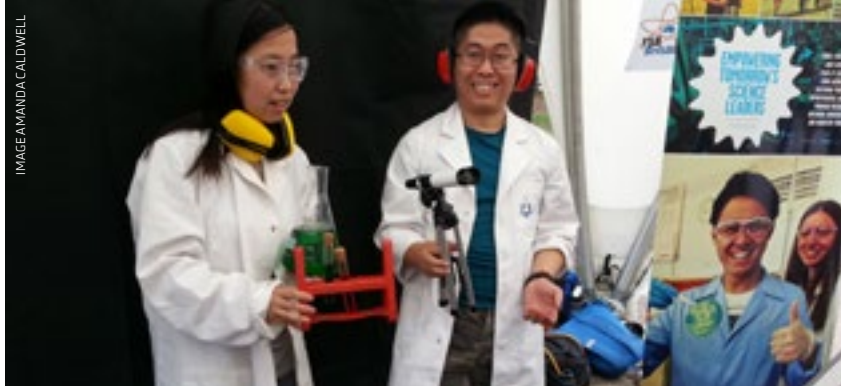


IMAGE AMANDA CALDWELL

### December 2015

#### PwC 21C Minds Accelerator Program

In December 2015, the NYSF was selected as one of 20 organisations from across Australia to take part in PwC 21C Minds (21CM) Accelerator Program. This opportunity provides the organisation with a unique experience to develop our strategic direction in a supportive and innovative environment.

It offers one-on-one support for strategic planning, access to a fixed level of PwC Consulting Services, and a national network of STEM organisations, supported by PwC. The NYSF is certain that this opportunity will significantly strengthen its capacity for growth in the medium term, and result in an increased capacity to grow the organisation and increase the services it offers to the Australian community.



[www.21stcenturyminds.com.au](http://www.21stcenturyminds.com.au)

### March 2016

#### World Science Festival Brisbane

In March 2016, the NYSF participated in the inaugural World Science Festival Brisbane, organised by the Museum of Queensland. A reported 120,000 visitors participated in the program over the week of activities that covered everything from Nobel laureates to turtles.

The NYSF was there at the Street Science events on the weekend, alongside of the Young Scientists of Australia's Brisbane Chapter. Much fun was had talking with young children about some basic science – magic mud and coiled spring theory – as well as playing dress-ups at the Photobooth.

A significant team of Brisbane-based NYSF alumni, some of whom are also members of YSA, helped out with the activity.

In addition, two of our alumni, Dr Phil Terrill and Holstein Wong, took part in our *Letter to my teen self* talk, presented in conjunction with Women in Technology Queensland. They shared their insights and top tips with the audience about how to keep motivated and what they learned through studying science and moving into STEM related careers.

[www.worldsciencefestival.com.au](http://www.worldsciencefestival.com.au)



IMAGE JULIE MAYNARD

### August 2015

#### National Science Week

The NYSF took part in Science in ACTION, as part of the ACT's National Science Week activities.

National Science Week is Australia's annual celebration of science and technology and thousands of individuals – from participants, to scientists to chefs and musicians – get involved, taking part in more than 1000 science events across the nation.

On the first day, school groups ranging from years 9 to 12 who study in the Canberra region visited the event, learning about the many organisations involved in science activities in the ACT and surrounding areas.

Saturday was Community Day, which kept our NYSF volunteers busy answering questions about our programs and demonstrating the very popular Van de Graaff generator and Oscilloscope, which were kindly loaned by the ANU Physics Education Centre.

The event attracted over 5,000 visitors over both days.



### Media activities

Communicating the benefits 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.

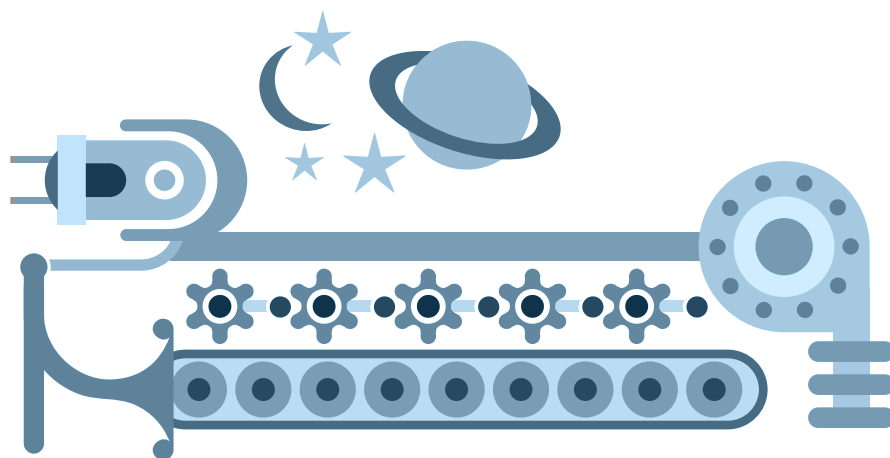
Along with the corporate bi-monthly newsletter, NYSF Outlook, the annual report, promotional materials, articles and events, 2015-16 has seen an increase in strategic communication activities including:

- Television, radio and news media coverage during January Sessions;
- Supporting participants who are invited to conduct interviews with media outlets;
- Increased use of and presence on social media, such as Facebook, Twitter and Instagram;
- Contributing and participating in the National Science Week ACT event, Science in ACTION 2015 (see page 25);
- Participation in the first World Science Festival Brisbane (see page 25);
- Stories relating to many of these activities are available for review on the NYSF Outlook website – [www.outlook.nysf.edu.au](http://www.outlook.nysf.edu.au).

In 2016, four interns drawn from our alumni joined the Communications Team during January, engaged with the task of writing daily news content for the NYSF Outlook blog page.

The NYSF 2016 activities were featured in the media many times during January:

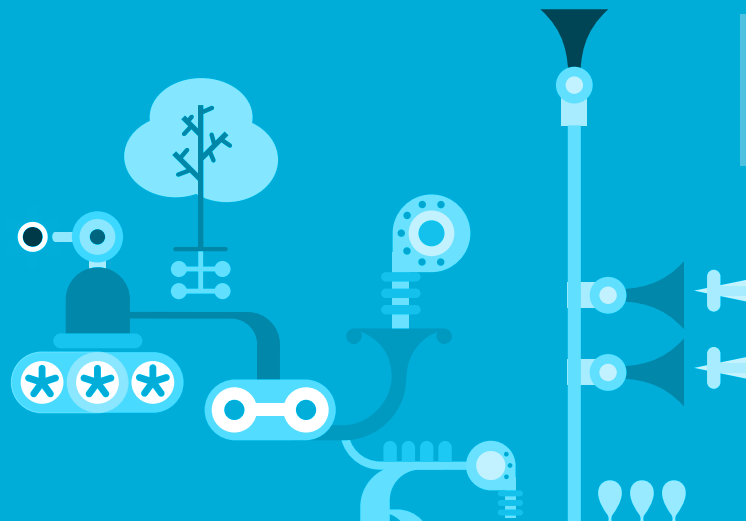
- WIN Television News interviewed Rose from Tasmania and Tim from Armidale, NSW, and the story was included in the network's national regional news program
- Kaliopi from Canberra was interviewed by the Sunday Canberra Times
- Patrick from Woolgoolga, NSW and Grace from Camberwell, Victoria were interviewed by ABC Radio's 666 Canberra, which was also featured on the ABC's national network of programs
- ABC Radio's 666 Canberra interviewed Dr Heather Bray, an alumna of the NYSF, about her address to participants
- Dr Rish Ratnam, an alumna of the program, talked to ABC Radio's 666 about the session on entrepreneurship and its importance to young people
- The National Science Teachers Summer School was featured in The Canberra Times when the program's participants visited teacher Geoff McNamara at Melrose High School. Mr McNamara was the recipient of the Prime Minister's Award for Secondary Science Teaching in 2014.



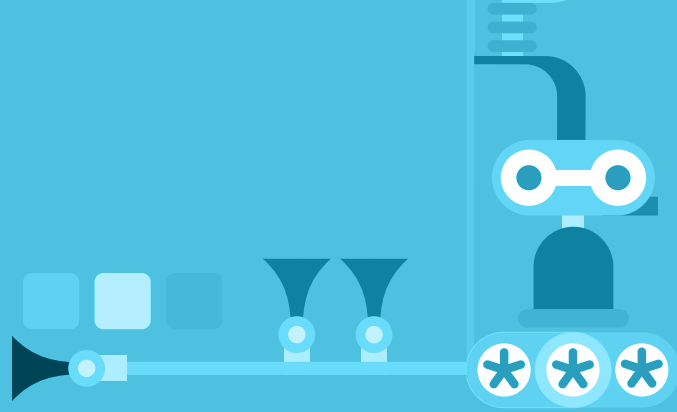


**“At first, I thought that the NYSF was just about science lab visits and I was nervous that I wouldn’t fit in. I soon found out that there is more to science, including public speaking skills, networking and making new friends. I know that my sister and my friends would benefit from this program, just as I have.”**

Callum Breetzke NYSF 2016,  
Carrara, Queensland.



# Alumni stories



## Rish Ratnam, Alumnus 2000, Canberra

“Most of us are told to follow our passions in life. I believe that advice can be dangerous without having exposure or experience to the things we think we’re passionate about. For one thing, we can be passionate about many things, so which one do we pick? For another, we may not know we’re passionate about something until we try it.”

For Rish, the NYSF was a vital first step in validating that mathematics was a viable career starter for him.

“Energised by my experience at NYSF in 2000, I entered the University of Newcastle (UoN) in 2001 studying Bachelors of Science (physics major) and Mathematics. My intentions were not so much to pursue a career as a researcher, as much as an entrepreneur who funded and directed research. Being mistaken in the belief that entrepreneurs need

money to make money, I reduced my study load by one quarter and picked up three jobs, investing every spare dollar I had in real estate to prepare to fund my future empire (there’s no point dreaming of anything smaller than an empire when you’re 19...)”

Whilst UoN had an extremely supportive and intimate student-teacher culture, its academic expertise lay outside the areas of mathematics that he wanted to explore. “With this in mind, I transferred to The Australian National University (ANU) in Canberra for my postgraduate studies – studying the geometry of space in ‘string theory’ – where I found a highly challenging academic environment together with a growing and well-networked entrepreneurship scene. Postgraduate studies also allowed me to pursue my other interests, developing my passion for teaching through a bespoke teaching fellowship, and teaching me about booms and busts as I entered the share market a few months prior to the 2007/2008 financial crisis. Ouch.”

In 2009 he paused his PhD studies to undertake a graduate certificate in commercialisation, wherein he learned about the concepts of startups, innovation, and investors. “It turns out you don’t need money to make money. Oh well. At the time I did not have any intellectual property that could be commercialised, so after completing my PhD in 2011, I set up an innovation agency with one of my classmates, supporting the growing business by lecturing part-time at Macquarie University, working for a pair of technology startups and researching for the UoN business school.”

“This was a good introduction to business, helping me develop many important skills, including team leadership, sales, product development, and making decisions under extreme uncertainty. Throughout it all, my mathematical training proved invaluable in knowing how to recognise and logically test the many assumptions involved in innovative projects.”

“However, as anyone in business knows, service-based businesses are difficult to scale, so at the end of 2015 I left the consultancy and took a couple of months off to evaluate the future. Looking at the continued exponential growth of technology, I decided the most impactful use of my skillset was in artificial intelligence (AI). Since then, I have had the time of my life learning new skills and collaborating with members of the Canberra AI community on exciting new technology for predicting the future. We’ll be launching a new company backed by that technology soon, so watch this space!”

## Maddy Wang, Alumna 2016, Ballarat, Victoria

"It's currently 20 degrees outside in the lovely Ballarat 'summer', but I'm rugged up inside wearing my National Youth Science Forum (NYSF) hoodie, while my NYSF cap hangs nearby and my NYSF t-shirt is begging me to fold it properly. There may be a common theme occurring here, seeing as my NYSF "wouch" (wallet pouch) is laying on my desk, and my phone lights up with messages from the friends I made on session. If one thing is certain, the whirlwind that was the NYSF is now part of my life forever."

Ballarat Grammar School has a history of NYSF participants. Maddy's NYSF journey began when her chemistry teacher suggested she apply for the program, given her interest in chemistry and physics.

"January crept up on me and before I knew it, I was standing on the lawn of Burgmann College at the Australian National University. I had come to the NYSF expecting two hundred nerds, and a quiet atmosphere. Instead, what I stumbled into was the most exciting experience of my life, where I did not stop for breath for two weeks and loved every second of it."

Maddy was a member of the Einstein interest group with 13 other participants. "All had keen minds for physics – some of whom I'm sure will go on to do Nobel Prize winning research. The group members had different interests and ideas about physics – engaging in discussions that even my nerdiest friends at school would never indulge in. The experience was surreal. Einstein became my close friends, almost akin to a family. Adding to this group was my floor buddy who also became my best friend. You may think two weeks isn't time enough to make strong friendships, but we are all united in the bond of the NYSF."



Her first lab visit was to the ANU Nuclear Physics Lab. "We learned about plasma and its role in creating nuclear fusion reactors, to positron emission, it was truly an eye opening experience. It's something really special to be able to talk to those performing leading research, as opposed to seeing the world of science through a textbook."

For Maddy, her favourite lab visit was the Mount Stromlo Observatory. "This is where Professor Brian Schmidt conducted his research on the acceleration of the expanding universe. In that moment, I felt like I could be a physicist, and that's something truly empowering."

"With increasing media discussions around raising the number of women in science, the NYSF certainly led by example. With speakers such as NYSF Chair and Deputy Vice Chancellor Research and Innovation at the University of South Australia, Professor Tanya Monro – examining the links between industry and science, to Dr Ranjana Srivastava's speech at the Science Dinner about the hardships she faced as an oncologist. Seeing woman so prominent and proud raised my spirits. And of course, thanks are also extended to Dr Subho Banerjee who spoke at the Rotary dinner, displaying to us the important role of science within the government."

"With opportunities to visit Australian Parliament House for the Opening Ceremony to practising our networking skills at both the Rotary and Science dinner to making friends with the head of physics at The University of Melbourne, or a geologist – the breadth of people I met broadened my world."



## Aden Ciantar, Alumnus 2016, Norfolk Island

It was with the encouragement of his science teacher at Norfolk Island – an NYSF alumnus, Carl Pinson (2002) – that Aden Ciantar applied for the NYSF 2016 program.

“After arriving in Sydney via Auckland, I was billeted for the night by a lovely family whose son Ashvin, was also attending the NYSF. I wasn’t really sure what to expect on my way from Sydney’s Central Station to Burgmann College at The Australian National University (ANU) but what I did know was that if the other participants are like the people I was travelling with, then the next two weeks were going to be interesting.”

Apart from the Opening Ceremony at the Australian Parliament House and the Science and Rotary dinners, one of the most memorable moments for Aden included a visit to the Mount Stromlo Observatory. “We saw the laser which shoots space debris out of the sky so it does not interfere with the space stations. And our site visit to NASA’s Canberra Deep Space Communications Complex at Tidbinbilla which was the first station to receive images of Pluto from the satellite – New Horizons – left everyone wanting to be an astronaut.”

For Aden, apart from the people involved, the best thing about the program was the learning experiences. “Our physics group Wu, visited the research centres around the ANU, where PhD participants conduct their research. We visited the plasma and nuclear physics centres, the chemistry centre – where we conducted experiments based on temperature, as well as visiting the geology centre where Sarlae McAlpine conducted her PhD. Sarlae is a local Norfolk Islander whose story in science was one I will remember forever.”

“Throughout the program, we sat in lecture theatres listening to some of Australia’s greatest minds talk about ethics and diversity, discussions about alien life, critical thinking and the Think Big – What Happens Next presentation conducted by the student staff leaders.”

The live videoconference with Dr Rolf Landau from CERN Switzerland was the experience Aden was looking forward to the most. “Here we basically heard about anything and everything associated with the Large Hadron Collider. Of course I had to ask him what his thoughts were on Stephen Hawking’s remark about the Higgs Boson being the potential end to the universe, but I digress...”

Aden says he gained a lot from the entrepreneurial skills workshop. “This got me thinking about the different career paths I could take. It was a pivotal moment. I had thoughts about teaching, but what I had really wanted to do was to combine my passion for science and people skills and become an entrepreneur. I want to start a company based on furthering science, technology, engineering and maths (STEM) education – to inspire the next generation of scientists – or maybe even the next Einstein, who just hasn’t realised what he or she shall become.”

Aden’s advice for future NYSF participants? “It is very hard to describe the actual feeling you get from attending the NYSF, but for those devoted and passionate about the sciences, they should not hesitate in applying for the program.”

“Thank you to Norfolk Island Rotary, my science teacher Carl Pinson, Paul Cope and Ian Kiernan and of course the NYSF. I had the best two weeks of my life.”



## **Sarah Whereat, NYSF Rotary District Chair 9865, Rotary Aunt**

Rotary provides an essential role for the NYSF from selecting participants, to volunteering their time during the January program delivering pastoral care and support as “mums, dads, aunts and uncles.”

Rotarian Sarah Whereat is the District Chair for 9685 Penrith Valley and has been associated with the NYSF for the past six years, four of those as District Chair.

“I have been very fortunate to attend the NYSF in January as Rotary Aunt for three of those four years, with only ill health preventing the fourth.”

“I get a real buzz from seeing the participants attend the interviews, orientation and then the session. Watching how the participants develop and communicate throughout the two weeks makes the work of District Chair worthwhile.”

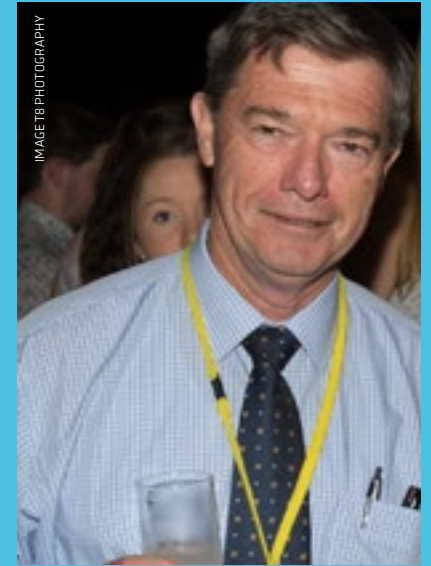
Sarah has also contributed to the program by billeting participants in transit before and after the January sessions. “I love to hear the enthusiasm with which they describe their time on session and how much they are looking forward to going. You then know that Rotary and the NYSF have made an impact.”



## **Danny Mattsson, from Rotary District 9570, Rotary Dad**

Rotarian Danny Mattsson comes from Rotary District 9570 in Hervey Bay in far north Queensland. He has attended the NYSF January sessions twice – in 2015 as Rotary Uncle and in 2016 as Rotary Dad.

“The NYSF has always been a passion of mine. It has been amazing to see the participants, from their initial discussions with the Rotary Club before they attend the January session, through to seeing a totally changed person return to the club to talk about their experience some months later.”



As a Rotarian, the biggest thing for me was seeing the 200 participants develop from the initial discussion through the course of the two weeks – it was something to behold. At the end of the experience, I think everyone matures. For student participants, they leave with a greater understanding of the direction and pathway they wish to follow. For us, the volunteers, we are left with a sense of knowing and understanding that our future and that of generations to follow will be in better hands.”



IMAGE: B PHOTOGRAPHY

## **Ashleigh Gonzalez, Alumnus 2015, Student Staff Leader 2016, Bulimba, Queensland**

Each year, a group of NYSF participants is selected to return for training to deliver the following year's NYSF January Sessions. Ashleigh Gonzalez reflects on her Student Staff Leadership training experience.

"Given the amazing memories and standout experience of my participation in the NYSF, I could not contain my excitement in being invited to train to become a member of the Student Staff Leadership Team for the NYSF 2016.

With a little curiosity and a lot of enthusiasm, I returned to Canberra in July 2015 to meet up with both familiar friends from my own NYSF session, and to make new friends from the other session.

The Student Staff Leadership training covered all of the responsibilities involved in being a "staffie" – including some of the "secrets", as well as helping us to develop the necessary skills for delivering the January Sessions. We practiced skills that are relevant not only to the NYSF but to everyday life. And we learned about the incredible effort and planning that goes into running the program.

Doing the trek in the cold Canberra winter, we disconnected from our familiar world and endured the tests of the challenging environment. We connected with the other team members, and forged unforgettable bonds. In being given the opportunity to reflect upon our values, we each experienced significant personal growth, learned a great deal about our capabilities as leaders, and together fostered an encouraging and supportive team environment that followed through to January.

I found the entire Student Staff Training Program incredibly rewarding and remember feeling so lucky to return home to face the remainder of year 12 with renewed motivation."

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