I’m a Scientist, Get me out of Here!

Sponsor’s Report: August 2013

Student:
“. . . how come the gasses in the sun, don’t burn away”

Scientist:
“. . . they do in a giant nuclear explosion. Eventually it will run out of fuel. They don't "burn" in the normal sense - no oxygen”

Student:
“. . . thx that fascinated me”

Contents

Thank you to our partners for supporting *I'm a Scientist, Get Me Out of Here!* in Australia:

- Zone supporters the Department for Manufacturing, Innovation, Trade, Resources and Energy (DMITRE) (SA) for sponsoring the August 2013 general science zone, also known as the Nitrogen Zone.
- Scientist supporters the Waite Research Institute (WRI) for sponsoring wine chemist David Jeffery in our Nitrogen Zone.

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I'm a Scientist, Australia presented by Bridge8 Pty Ltd
August 2013

Sponsor summary

I'm a Scientist, Get me out of Here! is a science engagement activity where school students aged 9-18 years talk to real scientists online for 2 weeks. Students take the lead by posting questions via an "Ask" forum and instant message scientists in their zones in 30 minute "Live Chats". The latter half of the event is 'Eviction Week' where students vote for the scientist they think is the "best" according to their own criteria. The winning scientist in each zone receives $1,000 to spend on further public outreach.

I'm a Scientist, Get me out of Here! focuses on the "Science as a Human Endeavour" part of the national curriculum and aims to nurture a lifelong interest and engagement with science and technology, as well as the consideration of careers in science, research, technology and innovation. The questions posed by students in our August 2013 event show that they are thinking about the role of science and technology in their everyday lives, including gene manipulation in animals, problems facing the planet and if these are natural or man-made, and the legacy being left for future generations.

Support from DMITRE (SA) and WRI has enabled us to deliver our fifth event since 2011. In August 2013 we were able to feature a general zone called Nitrogen, and two theme focussed zones: Brain and Micro Life. Participating scientists were from across the country in disciplines including psychology, sleep science, biochemistry, computer science, zoology, astronomy and explosive and wine chemistry. Each zone consisted of 5 scientists and approximately 250 students in years 5 – 12. Some schools participated for a second or third time, and others were new to the event, including a school from Baltimore, USA, evidence of the growing popularity and success of *I'm a Scientist, Get me out of Here!*. Overall 691 students asked 980 questions on our forum and participated in 60 live chats.

Sponsor Visibility

Zone sponsors DMITRE (SA) and scientist sponsors WRI were featured with mentions in: the scientists' briefing notes; within media releases to regional and national media; direct communication campaigns via email; Facebook; Twitter (#IASAus); and on the 'Partners page' of the *I'm a Scientist, Get me out of Here!* website with approved text, logos and weblinks.

Looking to the Future

The success of the 2012 and 2013 events means we have already expressions of interest from schools and scientists for the next *I'm a Scientist, Get me out of Here!* in May 2014. Further sponsorships will allow us to expand the number of zones and therefore participating schools and scientists, giving us the opportunity to explore an even wider variety of scientific research taking place across Australia.

Participation

I'm a Scientist has now reached 4,000 students in Australia across five events, and 10 students in USA in from our most recent August event. A summary of the August 2013 activity is in Table 1 and includes a new *I'm a Scientist, Get me out of Here!* record for the number of questions asked in a single zone – 428 questions posted in the Nitrogen Zone.

Table 1: Summary of activity in the August 2013 event of I'm a Scientist

Zone	Students	Questions	Comments	Live Chats
Brain	232	395	206	22
Micro Life	214	157	114	21
Nitrogen	245	428	258	17
Total August 2013	**691**	**976**	**578**	**60**

Participation by Schools

A total of 35 teachers from 25 schools registered to take part in the August 2013 event, each teacher applying for up to 10 student groups. Students were from a broad socio-economic background with participating schools comprising 20 public schools and 5 private schools covering WA, Qld, SA, NSW and Vic. School names, type and their level of activity during the 2 week online event can be found in Appendix 1.

Students had the chance to join scientists in the award winners category of the event. Scientists were asked to nominate students that they thought had been outstanding in terms of the types of questions asked and their engagement during chats. There was one winning student in each zone: amberfaith in the Brain Zone, magdaflynn in the Micro Life Zone, and misseden in the Nitrogen Zone. The student winners each received a $50 iTunes voucher and those who were highly commended received a certificate to mark their achievement. A full list of students who received an award can be found in Appendix 2.

Participation by Scientists

A summary of participating scientists and affiliations is shown in Appendix 3. Scientist recruitment was conducted to ensure diversity in disciplines and research topics, a range of career levels, and scientists from different types of organisations.

Support from our partners and the success of the recruitment for the August 2013 event enabled us to host two themed zones and a general 'Nitrogen' zone. The zone winners were: senior research fellow Peter Enticott (Monash University, Vic) in the Brain Zone; PhD student Mia Zeric (University of

Sydney, NSW) in the Micro Life Zone; and PhD student Mia Cobb (Monash University, Vic) in the Nitrogen Zone.

Evaluation

The success of the event and its management was evaluated by collecting formal feedback from scientists, teachers and students via an online survey after the event.

A more dynamic approach was taken during the event where feedback from participants was sent via email and social media, shaping the ongoing refinement of content and event management. Teachers used email to get in touch with the team, and scientists provided feedback via Twitter, the *I'm a Scientist* alumni Facebook group and email.

After each event the *I'm a Scientist* team host a culmination event for participant scientists as a thank you for their contribution. Scientists from previous seasons of *I'm a Scientist* are also invited. This alumni group provides an opportunity for scientists to share their current ideas for communicating science and encouraging STEM careers, as well as acting as a forum for informal feedback to the *I'm a Scientist* organisers.

Formal feedback: Online surveys

An incentive for completion of the student survey was used to encourage responses. From the students who completed the survey, zanzibar was chosen at random to receive a $50 iTunes voucher. Teachers and scientists were reminded and encouraged to complete the online survey during the final week. Links to all the surveys (student, teacher and scientist) can be found at http://imascientist.org.au/feedback/.

Students

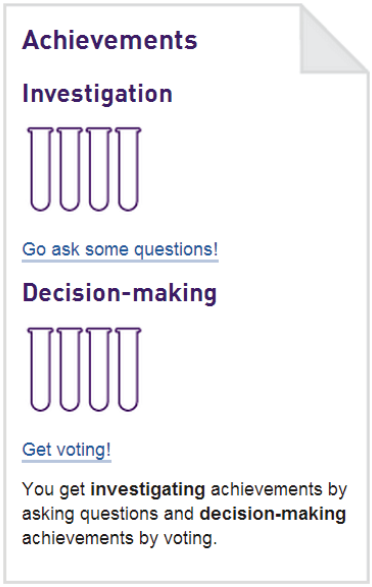
A total of 45 students from 15 schools completed the feedback survey for the August 2013 event, a response rate of 7%, the second highest so far compared to 8% in March 2013, 3% in August/September 2012, 6% in May 2012 and 4% in June 2011.

With almost a third of students from one school (14 students from Toormina High School) and the remainder from the other 14 schools it is difficult to determine trends amongst students across the different schools. We can however demonstrate an increased level of engagement beyond the classroom with 51% of respondents having accessed the site from both school and home, compared to 46% in our March 2013 event.
In support of this, 91% of respondents rated the event "Quite Interesting" (23) or "Very Interesting" (18), reporting that they were generally more confident (33% of respondents), if not much more confident (another 33% of respondents) in asking questions about science.

There was a significant swing towards the "Live Chats" as the activity from which students felt they leant the most from, 73% of respondents choosing the "Live Chats" over the "Ask" (20% of respondents). When asked what they disliked about the event and how they felt it could be improved, the general message was that they wanted more – more scientists, more of their questions answered and more live chats:
"... make it longer so we get more opportunities to ask questions and chat with scientists" – Year 9 student, Toormina High School, NSW

With 78% of respondents saying that they would recommend the event to their friends, it was an overall positive experience from the students' point of view. What they liked about taking part in *I'm a Scientist* was talking to real scientists, asking their own questions, and seeing what others were asking:

Figure 1: Snapshot of website: test tubes measuring event engagement



"I liked the live chats because you were talking with the scientist in real life (well sort of) and it made me feel as though they really cared and answered our questions." – Year 9 student, Toormina High School, NSW

"... I got to ask questions to actual scientists rather then just the teacher, you got to extend your learning and see what other students questioned. But most of all it was fun and engaging." – Year 7 student, Clover Hill State School, Qld

The website measures students' engagement during the event in the form of a set of test tubes. The test tubes fill up as students engage more and more in the event, asking questions and casting their votes. Students value this as feedback on their participation in the event:
"... they make you feel good that you achieved something." – Year 7 student, Pimpama State Secondary College, Qld

Teachers

With a response rate of 14% (5 respondents out of 35 teachers) it is difficult to determine trends amongst teachers across schools. We can however present general observations from the responses we received.

Teacher respondents stated that the event had been a positive experience for their students, and for them as teachers it was this positive experience that was the single most important outcome of the event:

"The students were able to ask questions that they felt would not have been able to be answered by anyone other than a professional in the field. We were in the brain zone so they students asked questions about issues that they were faced with in their lives, siblings with autism to grandparents with dementia." – Pauline

"I saw quiet students who never ask a question in class asking the most amazing questions to the scientists. It allowed those quiet students to shine." – Mary-Jane

When asked if the experience had encouraged students to consider a career in science, teachers general response was that students were more engaged in science lessons since taking part and discussions about different careers in science had ensued:
"Students that I have heard in the past say they hate science, spoke highly of the work that some of the scientists were doing. As year 9 students it definitely got them thinking." – Pauline

"One student was very taken by Mia [Cobb]. *She loves dogs but didn't think that could be a career."* – Vicki

The amount of time spent on the *I'm a Scientist* website within the classroom ranged from 2 – 8 hours, an increase from the 1 – 6 hours spent during the March 2013 event.

All teachers said that they would participate in the event again, and would recommend it to a colleague. Suggested new zones for future events included: Brain Science; Ecology; Energy; Engineering; Emerging Technologies; Marine Science; Microbiology and infectious diseases; Mining and Agriculture; Forensic Science; Sports Science; Pharmacology; Physics; Reproductive Sciences; Genes; and Quantum Sciences.

An area of suggested improvement was the capture of live chat dialogues. As the nature of live chats is dynamic and temporary interaction between students and scientists, the availability of dialogue for use after the event is contrary to the spirit of this part of the event.

Scientists

Six out of our 15 scientists responded to our request to fill in the online survey (a 40% response rate). All six respondents said "yes" they enjoyed the event, with five rating it as having been "fantastic" and one as "OK". Below are a few examples of the responses we received:

What did you gain from the experience?
"Seeing such enthusiastic students and finding out what they are learning in school. Also, figuring out how to respond at an appropriate level of detail to a range of different students from various year levels." – Dave

What do you think students gained from the experience?
"I think we gave them a good impression of what science really is. Not this all-knowing thing, but just systematic inquisitiveness." – Josien

Did you feel you changed the language you used or the way you were communicating during the event?
"I learned to balance scientific language with chat. Tried to think and talk like a student would." – Sarah

How does it compare to other science engagement?
"It was much more intense and was more about the actual science rather than just about career prospects." – Kristyn

Scientists were very positive about the event management and found the scientist briefing notes quite – very useful. The 'Ask' section was voted the most interesting compared to other sections of the website, including the 'Live Chats'. Scientists spent on average 1.9 hours participating in the event each day. Expectations were met and exceeded:
"It was everything I hoped it would be." – Peter

"...I didn't expect to be so emotionally involved..." – Dave

Informal feedback: Emails and social media

The feedback received via email and social media ranged from the discussion and resolution of any website glitches, to general positive and constructive feedback on the content and management of the event. These reflected the feedback received via the formal online surveys.

Emails – a teacher, a scientist

A teacher emailed us about the enthusiasm displayed by her students for the event:
"My students are loving it! One student said, almost shaking, "I just can't explain it, I can't believe it, I'm just so excited" Another, student, is just over the Moon with all your chats – he can't wait for the next one!" – Lynn

We also received an email from a scientist during the event about how much they were enjoying the *I'm a Scientist* event and developing new skills:

"Just wanted to say how much I'm really enjoying being a part of this -- I wondered initially what I'd gotten myself into :) , but the format works great and it's incredibly well run. Very impressed with some of the questions being thrown our way, but it also requires you to think on your feet which is always a use skill to develop! So thanks and well done." – Peter

Social media

The IASAus Twitter account has approximately 665 followers. Twitter is used to share interesting content and communicate easily with scientists via the #IASAus hashtag. About half of our scientists had been on Twitter prior to the event but their usage levels varied.

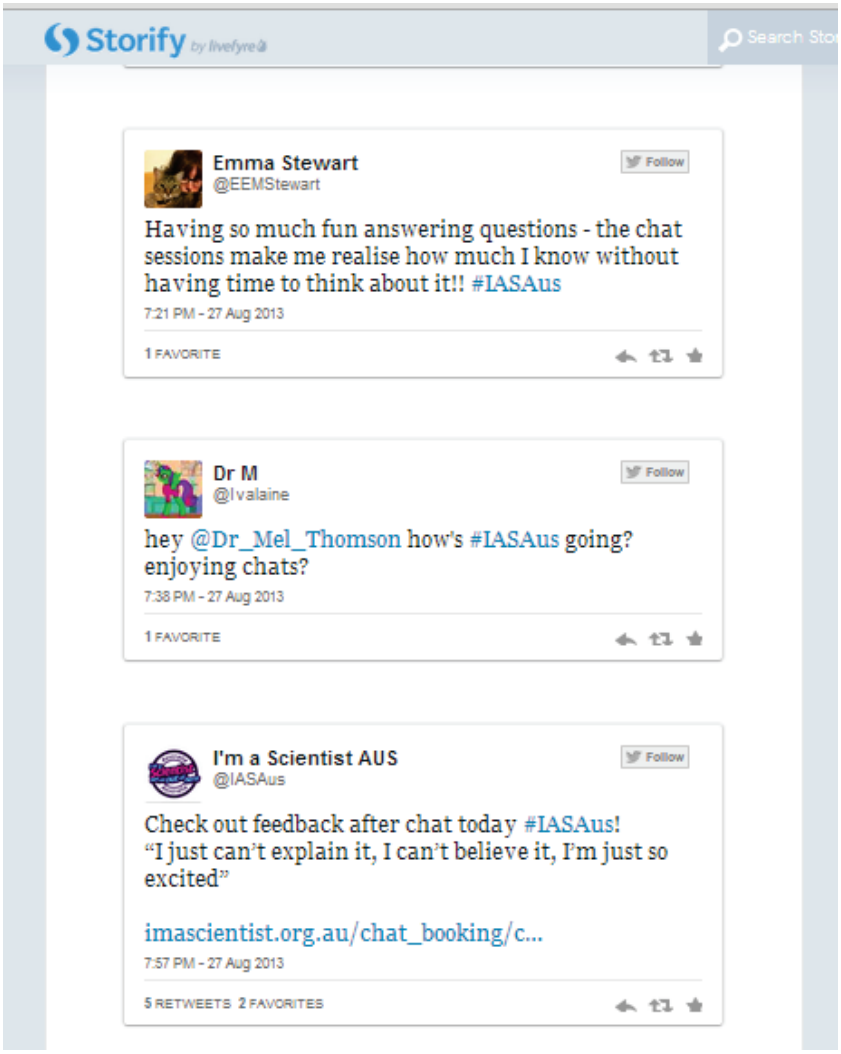


Figure 2: Collection of Twitter posts with #IASAus published by _bridge8 on Storify.

The excitement amongst our Twitter followers in the build up to, and during our August 2013 event was captured by Bridge8 (_bridge8) and published on Storify. A snapshot of the twitter feed for #IASAus is shown in Figure 2 above.

Website Analytics

The website data presented focuses on the period of 19 August – 6 September 2013, covering the week prior to the start of the event when Teachers' booklets were sent to schools via email.

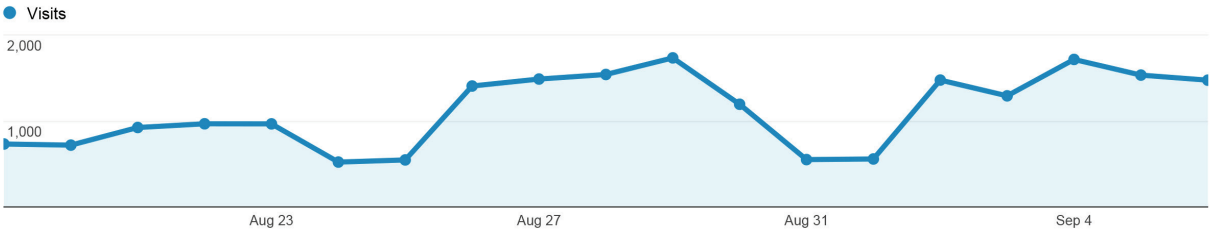


Figure 3: Visitors to http://imascientist.org.au

Web metrics indicate a steady growth in traffic to the website, building on that from previous events. The August 2013 event welcomed 14,869 unique visitors to the site (compared to 10,505 for March 2013 and 6,654 for August 2012), 79,751 page views (63,174 page views in March 2913 and 60,641 page views in August 2012) and the average time on the site was 4 minutes, 59 seconds (a slight increase on 4 minutes, 47 seconds for March 2013, but still much lower than 6 minutes, 58 seconds for August 2012). The visitor numbers are shown in Figure 3.

Traffic sources: An increase in search traffic (goggle) compared to March 2013 appears to be the major factor in the increase in web views.

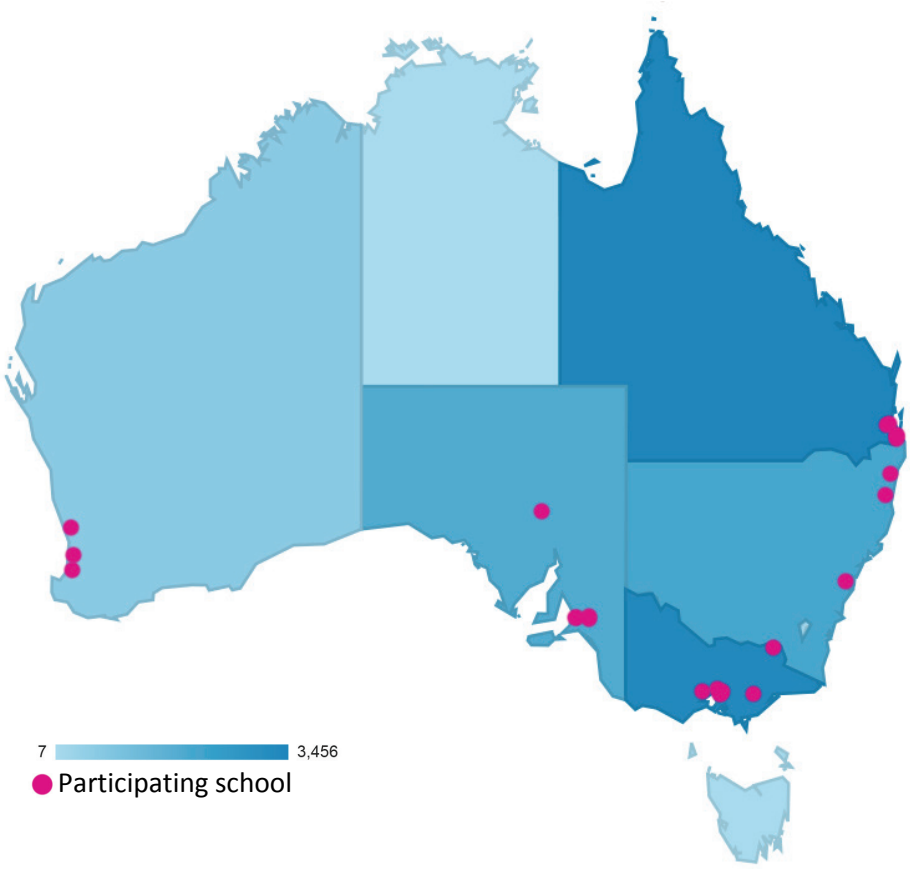


Figure 4: Participating school locations and visitors to http://imascientist.org.au by location

The majority of visitors were from the desired catchment area of within Australia, mirroring school participation as shown in Figure 4.

Examples of online engagement

Our August 2013 event had many examples demonstrating how students were thinking about the role of science and technology in their everyday lives and the legacy being left for future generations. There was significant interest in science careers in terms of pathways to becoming a scientist (mostly asked during the Live Chats), as well as seeking a deeper understanding of scientists' research areas and their opinions on personal and controversial issues. Below are some examples from our "Ask" section:

Gene manipulation – where does ethics fit in?

Students in the Micro Life zone posed questions about the ethics of gene manipulation and if it's dependent on the context.

Figure 5: Opinions on the ethics of gene manipulation

Impact of scientific research – will it make a difference?

In each zone we had questions regarding the benefits of scientists' work on society – human and animal. The example below is taken from the Brain Zone where students asked for examples.

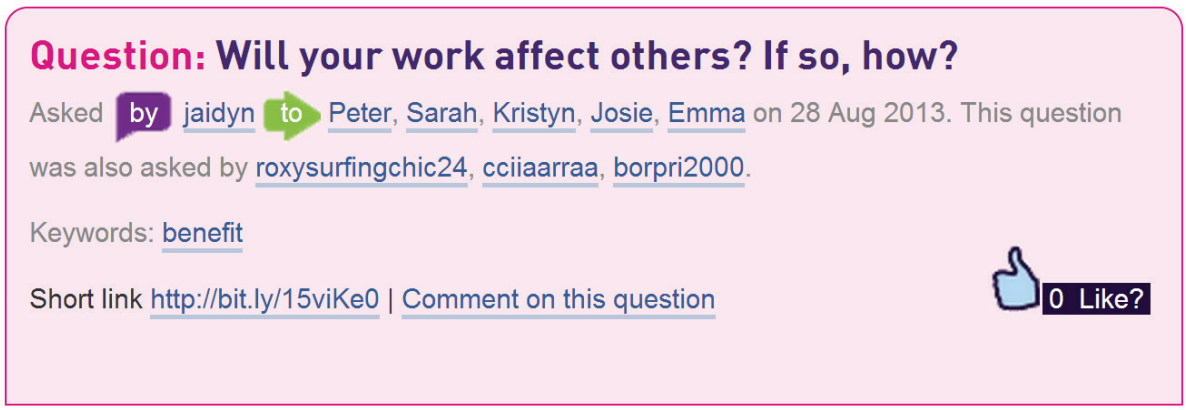


Figure 6: How scientific research impacts others

Career choice – what else would you be?

The most popular question in terms of page views was about what scientists in the Micro Life zone would be if not a scientist. This question taps into scientists' other interests and hobbies.

Figure 7: Looking at what else makes the scientists tick

Homosexuality – can we choose?

The second most popular question in terms of page views was one focussed on scientific evidence for sexual orientation. Scientists in the Nitrogen Zone gave some great scientific answers, likening sexuality to eye colour, or height.

Figure 8: Exploring the science behind sexuality

Media & Communications

The following activities were undertaken in order to reach out through traditional media channels:

- A Press information page on the *I'm a Scientist* Australia website (http://imascientist.org.au/about/press/)
- Direct communication via email campaigns to a combined list of 380 contacts
- Communications with *I'm a Scientist Australia* alumni through a closed Facebook group
- Bridge8 blog post http://bridge8.wordpress.com/2013/07/01/im-a-scientist-call-for-august/
- Registered as an event on the National Science Week website http://www.scienceweek.net.au/im-a-scientist-get-me-out-of-here-in-australia
- Press releases were prepared and sent to schools and scientists so they could share with their communications or administration teams to adapt for internal communications, local newspapers or other media.
- Press release distributed to local and national media on behalf of Bridge8

Coverage of *I'm a Scientist* was recorded through the following newsletters and blogs:

- Roxby Downs Sun, Local News article http://www.roxbydownssun.com.au/story/1739076/a-science-show-with-a-twist/
- Do you believe in Dog, blog post http://doyoubelieveindog.blogspot.com.au/2013/08/im-scientist-dont-get-me-out-of-here.html
- The Global Classroom http://theglobalclassroomproject.wordpress.com/2013/06/28/opportunity-for-australian-educators-and-international-scientists/
- Australian Academy of Science, Early Career Newsletter July 2013 http://science.org.au/ecr/ecr-newsletters/ecr14.html
- STEM Australia blog post http://stemaustralia.org.au/blogs/chester/case-studies/16/i-m-a-scientist-get-me-out-of-here
- Australian Animal Welfare Strategy, e-newsletter August 2013 http://promomail.adrenalinmedia.com.au/em/message/email/view.php?id=1035766&u=30423
- CQUniveristy Australia blog post http://www.cqu.edu.au/cquninews/stories/engagement-category/cquni-rep-part-of-im-a-scientist,-get-me-out-of-here!/_nocache
- The University of Sydney, blog post http://sydney.edu.au/news/molecular_bioscience/1893.html?newsstoryid=12340
- Monash University, blog post http://monash.edu/news/show/reality-tv-meets-science

Next Steps

Our Zone winners have great plans for the use of their prize money: Micro Life zone winner Mia Zeric is planning on visiting some of the I'm a Scientist participating schools and run a hands-on science activity; Nitrogen zone winner Mia Cobb plans to video-chat with participating schools giving

students the opportunity to ask even more questions, and hopes to introduce them to a citizen science project ‘Poo Power!’; and Peter Enticott, winner of the Brain Zone is intending to spend his well earned prize money on getting some much needed lab equipment.

We are grateful for your support of our program and look forward to continued engagement with our next event in May/June 2013.

Appendix 1: Participation by Schools

Table 2. Schools participating in August 2013 Event

State	School name	Type of School	Year level	Live Chat?	Total Events
MD (USA)	Lakeland Elementary Middle School	Public, Metro, Primary	5	Yes	1
QLD	Clover Hill State School	Public, Regional, Primary	5,6,7	Yes	2
QLD	Elanora State School	Public, Regional, Primary	6, 7	Yes	1
QLD	Kelvin Grove State College	Public, Metro, Secondary	10	Yes	3
QLD	Kenmore State High School	Public, Metro, Secondary	10	Yes	1
QLD	Pimpama State Secondary College	Public, Regional, Secondary	7	Yes	1
NSW	The Hills Grammar School	Private, Metro, Secondary	10		1
NSW	Mullumbimby High School	Public, Regional, Secondary	7, 8, 9, 10		1
NSW	Toormina High School	Public, Regional, Secondary	9	Yes	1
VIC	Baden Powell College	Public, Regional, Secondary	7, 8, 9	Yes	3
VIC	Corryong College	Public, Regional, Secondary	7,8,9,10	Yes	2
VIC	Diamond Valley College	Public, Regional, Secondary	7, 8	Yes	2
VIC	Glen Eira College	Public, Metro Secondary	8	Yes	1
VIC	Kilbreda College	Private, Metro Secondary	7,8,9		2
VIC	Liddiard Road Primary School	Public, Regional Primary	5, 6		1
VIC	The Knox School	Private, Metro Secondary	7	Yes	3

State	School name	Type of School	Year level	Live Chat?	Total Events
SA	Annesley Junior School	Private, Metro, Primary	5,6	Yes	3
SA	Australian Science & Mathematics School	Public, Metro, Secondary	10,11,12		2
SA	Clapham Primary School	Public, Metro, Primary	6		1
SA	Mannum Community College	Public, Regional, Secondary	8	Yes	2
SA	Murray Bridge High School	Public, Regional, Secondary	9		3
SA	Roxby Downs Area School	Public, Regional, Secondary	10	Yes	1
WA	Australind Senior High School	Public, Regional, Secondary	8, 9, 10, 12	Yes	1
WA	Kapinara State School	Public, Metro, Primary	6,7	Yes	3
WA	Manea Senior College	Private, Regional, Secondary	11	Yes	3

Appendix 2: Student winners

Table 3: Students commended for their outstanding contribution to the August 2013 event in terms of the types of questions asked and their engagement during chats

Zone	School	Student username	Year
Brain	**Toormina High School**	**amberfaith**	**9**
Brain	Clover Hill State School	cookies	7
Brain	Clover Hill State School	emeralddragon1	7
Brain	Clover Hill State School	narwhalelite001	7
Brain	Clover Hill State School	unicornsarereal	7
Brain	Glen Eira College	howl004	7

Zone	School	Student username	Year
Brain	Glen Eira College	m1kym4n3927	7
Brain	Kilbreda College	cccaaazzzaaa	7
Brain	Kilbreda College	tegan13	7
Brain	Kilbreda College	Vishvish	7
Brain	Kilbreda College	walkef	7
Brain	Manea Senior College	Karissa	11
Brain	The Knox School	1windsher	7
Brain	Toormina High school	beyonce	9
Brain	Toormina High School	velocity1166	9
Micro Life	**Kelvin Grove State College**	**magdaflynn**	**10**
Micro Life	Australian Science and Mathematics School	davidmcafeescience	11
Micro Life	Diamond valley college	gpenguin	7
Micro Life	Diamond valley College	novastreamer12	7
Micro Life	Diamond Valley College	pas0001	7
Micro Life	Diamond Valley College	ver0007	**7**
Micro Life	Kelvin Grove State College	aliyah	7
Micro Life	Kelvin Grove State College	climberlilxx	6
Micro Life	Kelvin Grove State College	cookedchicken1	6
Micro Life	Kelvin Grove State College	jacob	7
Micro Life	Kelvin Grove State College	willynilly101	6

Zone	School	Student username	Year
Micro Life	Kelvin Grove State College	seth	10
Micro Life	Kenmore State High School	jlim48	10
Micro Life	Lakeland Elementary Middle School	angelica	7
Micro Life	Pimpama State Secondary College	madicampbell	7
Nitrogen	**Kapinara Primary School**	**misseden**	**7**
Nitrogen	Annesley Junior School	kitty123	7
Nitrogen	Annesley Junior School	louiepop	**7**
Nitrogen	Australind Senior High School	johnarnoldambay	8
Nitrogen	Corryong College	boron	8
Nitrogen	Corryong College	mrbacon	7
Nitrogen	Corryong College	sallad	8
Nitrogen	Elanora State School	bbnrl99	7
Nitrogen	Elanora State School	gannaz	7
Nitrogen	Elanora State School	kido	7
Nitrogen	Kapinara Primary School	awesomecreeper488	7
Nitrogen	Kapinara Primary School	marshmellows	7
Nitrogen	Kapinara Primary School	yoloswager	7
Nitrogen	Roxby Downs Area School	laravdw	10
Nitrogen	Roxby Downs Area School	lochlantaylor	10
Nitrogen	Roxby Downs Area School	luke08	10

Zone	School	Student username	Year
Nitrogen	Roxby Downs Area School	shannon212	10
Nitrogen	Roxby Downs Area School	thepaleone	10
Random	**Mannum Community College**	**zanzibar**	**8**

Appendix 3: Participation by Scientists

Table 4: Scientists participating in the August 2013 Event

Zone	Scientist	Organisation & Location	Interests
Agriculture	Emma Stewart (PhD student)	University of Adelaide (SA)	I research how the brain processes visual information to turn it into accurate hand movements.
	Peter Enticott (Senior Research Fellow)	Monash University (VIC)	I conduct research into the neuroscience of autism spectrum disorder.
	Sarah Blunden (Senior Researcher)	Central Queensland University, Appleton Institute (SA)	I am a sleep scientist researching sleep in children and adolescents in the sleep laboratory and in the field.
	Josien de Bie (PhD Student)	Australian School of Advanced Medicine, Macquarie University (NSW)	I try to figure out how the brain communicates with the heart to help cure sleep apnoea and heart disease.
	Kristyn Bates (Assistant Professor)	University of Western Australia (WA)	I'm interested in helping the brain heal itself after brain injury.
Micro Life	Mia Zeric (PhD Student)	University of Sydney (NSW)	Gene flow without borders: Gene transfer and protein activity across clinical and environmental bacteria.
	Melanie Thomson (Lecturer)	Deakin Medical School (VIC)	Looking at how gastro and skin bacteria affect the host.
	Anissa Jabbour (Researcher)	Walter and Eliza Hall Institute for Medical Research (VIC)	To analyse how cells decide to either live or die.
	Eleanor Campbell (Technical Assistant)	Australian National University (ACT)	I'm a biochemist, which means I work with nature's amazing catalysts: enzymes!

Zone	Scientist	Organisation & Location	Interests
	Sam Askin (Researcher)	James Cook University (QLD)	Getting into the nitty-gritty of protein characterization for drug discovery.
Nitrogen	Peter Perry (Software Designer)	Defence Science and Technology Organisation (SA)	Computer software – architecture, design implementation.
	Kyler Kuehn (Instrumental Scientist)	Australian Astronomical Observatory (NSW)	I research new technologies and build equipment for new telescopes!
	Michael Cronin (PhD Student)	University of New South Wales, Canberra (ACT)	I use chemistry to detect explosives.
	Mia Cobb (PhD Student)	Monash University (VIC)	Following my undergraduate studies (BSc-Hons/Zoology) and after 10 years of working in shelters and working dog organisations, I am currently in the final year of my PhD researching various aspects of working dog welfare.
	David Jeffery (Lecturer)	University of Adelaide (SA)	I teach people about the chemistry of wine and I research the parts of grapes and wines which are important to style and quality.