PROMOTING A STEM CULTURE

2018 ANNUAL REPORT
The Wonder of Science profile increased significantly in 2018. In addition to extending our reach into classrooms across Queensland - which increased by 60%, the number of Young Science Ambassadors recruited from leading Queensland universities to support this work in schools almost doubled. The total number of ambassadors increased from 61 in 2017 to 107 this year - AND, almost 70% of the ambassadors are young women!

Also, the percentage of female school students (71% of the cohort) that attended the Wonder of Science 2nd State Conference in November was very high - AND, the percentage of those that comprised the winning Champion teams was an amazing 81%. All this followed on from our Young Science Ambassador, Amy Chan being announced in the 2018 Queensland Women in STEM Prizes, as the recipient of the ‘People’s Choice Award’.

Through the Young Science Ambassador program, Wonder of Science provided Queensland students ~20,000 hours of face-to-face contact with a scientist - and Wonder of Science received 75,600 Twitter impressions across the year.

I think we can conclude that Wonder of Science is indeed a champion, not only for ‘Science’ but also for ‘Women in STEM’ and in 2019 we look forward to continuing that excellent work. We will also continue to support more effective STEM education for ALL students, through our focus on regional and remote Queensland communities, as well as those in the south-east corner of the state.

Thank you to all our valued partners and schools. We look forward to working with you in 2019 and I hope you enjoy the 2018 Annual Report!
PROMOTING A STEM CULTURE
WHERE STUDENTS UNDERSTAND THE IMPORTANCE OF STEM AND BELIEVE THAT STEM EDUCATION AND CAREERS ARE ACCESSIBLE TO THEM

“A renewed national focus on STEM in school education is critical to ensuring that all young Australians are equipped with the necessary STEM skills and knowledge that they will need to succeed”1
1National STEM School Education Strategy report, 2015

STEM INQUIRY - CHALLENGING, REAL-WORLD TASKS ALIGNED TO THE AUSTRALIAN CURRICULUM
- The Wonder of Science challenge tasks immerse students in authentic and collaborative inquiry
- Students develop critical and creative thinking skills as they are challenged to develop a group response to a real-world problem or scenario

YOUNG SCIENCE AMBASSADORS - INSPIRATIONAL PHD RESEARCH STUDENTS ARE PASSIONATE AND KNOWLEDGEABLE STEM ROLE MODELS
- The Young Science Ambassadors support implementation of Wonder of Science, and judge presentations at the student conferences
- Teachers describe them as “bringing STEM to life” in their schools

STUDENT CONFERENCES - ASPIRATIONAL REGIONAL AND STATE STUDENT SHOWCASE EVENTS
- Representative teams from participating schools are invited to present their challenge task response at a one-day regional student conference
- Winning teams receive medals and a trophy for their school and are then invited to State Conference

STRATEGIC PARTNERSHIPS - BETWEEN SCHOOLS, UNIVERSITIES, INDUSTRY GROUPS, NON-PROFIT ORGANISATIONS & GOVERNMENT AGENCIES
- Wonder of Science fosters partnerships between schools and the wider community through our partner organisations
- Our partners support the student conferences and extension experiences for participating schools

Wonder of Science supports implementation of the Australian Curriculum for students in Years 5 to 9. Schools typically engage with Wonder of Science for one term each year.

TYPICAL TIMELINE FOR SCHOOL ENGAGEMENT WITH WONDER OF SCIENCE

 initial teacher professional learning for implementation of Wonder of Science

Week 1 - Young Science Ambassadors introduce Challenge Task

Visit 1 - Students investigate and research task

Week 3 - YSAs discuss response ideas or content

Week 5 - Students develop task response

Regional Conference

State Conference

End of Year

The Wonder of Science approach:
- develops deep understanding of STEM concepts in students
- promotes problem-solving skills, including critical, creative, collaborative and ethical thinking
- develops the student capabilities required to achieve and succeed in a rapidly advancing and changing world
- supports teacher capability for quality STEM teaching and learning

Lockyer Valley Regional Student Conference - The University of Queensland, Gatton
"A big thank you for all your hard work at Wonder of Science, the students absolutely loved the experience! The ambassadors did a tremendous job. They were highly engaging, very flexible and were a wealth of knowledge for kids who had lots of questions. They were all so very supportive and unique in their own ways; the teachers here and the students were much appreciative. The ambassadors have inspired many of our students to explore in more depth the wonderful world of Science, in the near and not so distant future. Many students have decided they’d like a career in STEM, how exciting!"
2018 IMPACT

STUDENTS IMPACTED THROUGH SCHOOL VISITS

- **2016**: 1670 students
- **2017**: 3818 students
- **2018**: 4580 students

**PARTNERSHIPS**

- **20 students** attended a two-day Camp Koala research experience (QTFN)

**STUDENT CONFERENCES**

- **790 students** attended a regional conference

**YOUNG SCIENCE AMBASSADORS**

- **113 students** attended 2018 State Conference
- **107 Young Science Ambassadors**
- **69%** of Young Science Ambassadors are female

**SCHOOLS**

- **54 schools** from regional, remote and metropolitan Queensland
- **70%** of schools are rated below the average socio-education advantage (ICSEA)

**75,600 Twitter impressions on the Wonder of Science Twitter account**

**70% of schools are rated below the average socio-education advantage (ICSEA)**

**1258 additional students reached through other STEM activities**

**www.myschool.edu.au (2018)**
PASSIONATE & KNOWLEDGEABLE STEM ROLE MODEL

The Young Science Ambassador program is proving to have a beneficial ‘two-way’ impact for STEM education in Queensland. The ambassadors are highly influential and positive STEM role models for both students and teachers as they go about bringing Wonder of Science to life in classrooms. Teachers and Principals frequently email to express their gratitude to us for providing “expertise in helping students succeed in STEM”.

The high number of ambassadors in the 2018 program, as well as the high retention rate this year (40% of the 2017 cohort returned in 2018) is indicative of the personal and professional development that the Research Higher Degree students enjoy through their involvement in Wonder of Science.

Their testimonials on the page opposite reflect their commitment as well as the sense of achievement and joy they gain helping students to achieve in STEM! Indeed, several ambassadors have been so positively impacted by their experiences in schools they are choosing teaching as a career pathway following completion of their PhD.

Two ambassadors are now employed full-time on Wonder of Science and several others remain with the ambassador program following completion of their PhD and commencing employment. The extended opportunities offered through their involvement in Wonder of Science is building their capacity as effective science communicators and enhancing their soft-skills, contributing to their development as emerging STEM professionals.

YSA RETENTION

<table>
<thead>
<tr>
<th>Year</th>
<th>NEW</th>
<th>RECURRING</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>21</td>
<td>28</td>
</tr>
<tr>
<td>2014</td>
<td>21</td>
<td>28</td>
</tr>
<tr>
<td>2015</td>
<td>28</td>
<td>28</td>
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<tr>
<td>2016</td>
<td>39</td>
<td>61</td>
</tr>
<tr>
<td>2017</td>
<td></td>
<td>107</td>
</tr>
<tr>
<td>2018</td>
<td></td>
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</tr>
</tbody>
</table>

AMBASSADOR TESTIMONIALS

AMY CHAN
IMMUNOLOGIST
The University of Queensland

“I’d like to thank you [Robyn] and Wonder of Science for giving me the confidence to apply for the QLD Women in STEM award. WoS gave me a lot of science communication practice and now I feel comfortable talking to other people about my PhD (I used to avoid doing this at all costs!).”

JASMIN GROSS
MARINE BIOLOGIST
Griffith University

“One of the best things that happened to me this year, was that my Wonder of Science application got accepted and that I am now a Young Science Ambassador.”

DAVID SUTTON
LASER PHYSICIST
Queensland University of Technology

“I became a YSA in 2018, and have thoroughly enjoyed every minute of my experience in the Wonder of Science program. After school visits and a number of regional conferences I have learned a lot about not only how effective what we do is for helping children learn, but also better ways for me to communicate my work to others. I greatly value the experience of making new colleagues and friends that I have met through my time in the program. Joining WoS is easily one of the best decisions that I have made.”

SISI SHI
COMPUTER AND ELECTRONICS ENGINEER
Griffith University

“I feel the [Wonder of Science] people are the best kind, they are like brothers and sisters, I want to do more, and better, for WoS in the future!”
Spaghetti Tower activity: Wonder of Science Regional Conferences

Weipa Flying Scientist Event

Taroom Flying Scientist Event

Moreton Bay Environmental Education Centre: St Helena Island field trip

Science Communication Workshop: Darling Downs Regional Conference

Young Science Ambassador: Chinchilla Flying Scientist Event

Young Science Ambassador: Bundaberg State High School Visit

Young Science Ambassador: Maryborough Visit

Young Science Ambassadors: State Conference

Winning Regional Team: Logan Primary Regional Conference

Algal growth investigation: Spinifex State College

Young Science Ambassador Induction Workshop: The University of Queensland

PROMOTING A STEM CULTURE IN QUEENSLAND SCHOOLS
StUDENT CONFERENCES

REGIONAL CONFERENCES

Wonder of Science targets whole class participation, opening up the opportunity for all students, not only those considered high-achieving or potential STEM students at higher education levels. Representative teams from each class participating in Wonder of Science attended a one-day regional student conference. As well as presenting their projects, the students had the opportunity to network with other schools and the Young Science Ambassadors. Teachers also benefited from the opportunity to observe their students and those from other schools, with many commenting, “it is very beneficial for us to see how other students (and teachers) approach the same task in very different ways – you don’t often get the opportunity to do that, particularly in science!”

STATE CONFERENCE

This year was the second Wonder of Science State Conference. The event was held at The University of Queensland with 32 of the 34 regional winning teams attending. In addition to the conference, students, teachers and parents from regional and remote centres were provided accommodation and meals at King’s College. The Young Science Ambassadors welcomed the visitors with dinner and a talent show in the evening prior to conference.

71% of students that attended State Conference were female. 81% of State Conference Champions were female.

THE 2018 STATE CHAMPION TEAMS

Year 5 - Happy Valley State School
Year 6 - Kimberley Park State School
Year 7 - St Mary’s College
Year 8 - Roma State College
Year 9 - Bundaberg State High School

99% of students that attended State Conference agree or strongly agree that attending the Wonder of Science State Conference was an exciting and challenging opportunity.

REGIONAL STUDENT CONFERENCE EVALUATIONS

The pie charts above show the percentage of students that agree or strongly agree that attending the Wonder of Science State Conference was an exciting and challenging opportunity.

THE 2018 STATE CHAMPION TEAMS

Year 5 - Happy Valley State School
Year 6 - Kimberley Park State School
Year 7 - St Mary’s College
Year 8 - Roma State College
Year 9 - Bundaberg State High School

99% of students that attended State Conference agree or strongly agree that attending the Wonder of Science State Conference was an exciting and challenging opportunity.

JANE O’REGAN
PARENT
Darling Downs South West

“...My son often struggles with motivation & focus at school, and the experience of taking part in this conference - being chosen to bring his group’s project to present to others, seeing what others had done, and listening to [the ambassadors] speak about [their] work in STEM - left him telling me afterwards ‘Mum, I think I want to get a job in STEM because they’re all so awesome’...”

ANDREW WEBSTER
PARENT
Kimberley Park State School

“Thank you for providing a wonderful experience for [my daughter] and a genuine thrill for our family. Soph grew taller when the winning team was announced - a great launch into high school. And she has two little brothers who will benefit in so many ways from her example... It’s a terrific program”

Wonder of Science targets whole class participation, opening up the opportunity for all students, not only those considered high-achieving or potential STEM students at higher education levels. Representative teams from each class participating in Wonder of Science attended a one-day regional student conference. As well as presenting their projects, the students had the opportunity to network with other schools and the Young Science Ambassadors. Teachers also benefited from the opportunity to observe their students and those from other schools, with many commenting, “it is very beneficial for us to see how other students (and teachers) approach the same task in very different ways – you don’t often get the opportunity to do that, particularly in science!”
**GROWTH**

**WONDER OF SCIENCE ANNUAL STUDENT REACH AND EXPENDITURE**

**EXPANSION**

While the increase in the number of schools accessing Wonder of Science from 2017 to 2018 was less than 10%, the number of classes in those schools that participated in Wonder of Science, increased by 60%, taking the total number of students directly involved in the program to over 4,500. Almost 800 of those (+ 115 teachers) attended a regional conference with 113 students and 28 teachers (+ 27 family members) then attending the State Conference in late November at The University of Queensland in Brisbane. Wonder of Science also supported around 20 additional STEM activities across the year, increasing the total outreach to just over 5500 students in 2018.

2019

Owing to a range of successful outcomes through participation in Wonder of Science, including access to the Young Science Ambassadors, schools across the state have indicated their excitement for ongoing involvement in 2019. Schools in Queensland can access Wonder of Science via fee-for-service with our valued funding partners continuing to support participation in Wonder of Science for schools in particular catchments.

Call or email Robyn Bull to discuss your school’s participation in 2019 - information flyer and nomination form available on the website: www.wonderofscience.com.au/

**FINANCIAL OVERVIEW 2018**

<table>
<thead>
<tr>
<th>INCOME ($'000)</th>
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<tbody>
<tr>
<td>Committed f'wd from 2017</td>
<td>461</td>
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<tr>
<td>Industry partners</td>
<td>104</td>
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<tr>
<td>University partners</td>
<td>190</td>
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<tr>
<td>Fee for service schools</td>
<td>49</td>
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<tr>
<td>Flying Scientist program</td>
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<td><strong>Total Revenue</strong></td>
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</table>

<table>
<thead>
<tr>
<th>EXPENSES ($'000)</th>
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</thead>
<tbody>
<tr>
<td>Salaries</td>
<td>159</td>
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<tr>
<td>Programs</td>
<td>132</td>
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<tr>
<td>Young Science Ambassadors</td>
<td>138</td>
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<td>State Conference</td>
<td>8</td>
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<tr>
<td><strong>Total Expenditure</strong></td>
<td><strong>437</strong></td>
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</table>

**BALANCE committed f’wd 2019-20**

392

**Toni Schneekloth**

**Principal**

Mansfield State School

"Once again, thank you for an amazing year supporting our students to find the wonder of science. Your team, your ambassadors, your program all are to be commended. We are so proud of the achievements of our students, but mostly so excited by their increased love of science and inquiry. We look forward to another great year next year.”

**Kym Amor**

**Teacher**

St Joseph’s Catholic School Cloncurry

"Thanks to you and all the team at Wonder of Science for giving our students a fantastic learning experience! We will be back next year!”

**Professor Alastair McEwan**

PVC (Research Training) Dean - UQ Graduate School Chair WOS Advisory Board

The University of Queensland

“I’m thrilled that this partnership between schools, universities, partner organisations and government is making STEM accessible and exciting to so many school students and their teachers. Equally, the impact of the program is wonderful to observe. Congratulations to all the participants and I look forward to continued growth of the program in 2019.”
This year through the Young Science Ambassador program Queensland students received ~20,000 hours of face-to-face contact with a scientist!

MARK MCNAUGHTON
TEACHER
Bell State School

“Just wanted to thank you guys for your efforts in hosting this year’s State Conference. Our students had a fabulous time and especially enjoyed the [speed meet] with the scientists as well as the engineering for women workshop. All of the ambassadors were fantastic again and the ambassador who played the violin at the talent show was really talented. Thanks again for providing this opportunity for our students.”

2018 WONDER OF SCIENCE SCHOOL PROGRAMS

<table>
<thead>
<tr>
<th>Cluster/Region</th>
<th>Funding model</th>
<th>Number of schools</th>
<th>Number of classes</th>
<th>Total students</th>
<th>Conference attendees</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Location</td>
</tr>
<tr>
<td>Brisbane Metro</td>
<td>Y</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary</td>
<td></td>
<td></td>
<td>Year 5 7</td>
<td>196</td>
<td>Brisbane 4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Year 6 8</td>
<td>160</td>
<td>Brisbane 4</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td>Total 15</td>
<td>356</td>
<td>Total 8</td>
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<tr>
<td>Darling Downs</td>
<td>Y</td>
<td>15</td>
<td>Year 3/4 2</td>
<td>9</td>
<td>Dalby</td>
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<tr>
<td>South West</td>
<td></td>
<td></td>
<td>Year 5 10</td>
<td>193</td>
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<td></td>
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<td>Year 5/6 4</td>
<td>47</td>
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<td></td>
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<td></td>
<td>Year 6 11</td>
<td>198</td>
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<td></td>
<td></td>
<td></td>
<td>Year 7 3</td>
<td>45</td>
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<td></td>
<td></td>
<td></td>
<td>Year 8 6</td>
<td>107</td>
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<td></td>
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<td>Year 9 5</td>
<td>44</td>
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<td>Total 41</td>
<td>643</td>
<td>Total 60</td>
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<tr>
<td>Mount Isa</td>
<td>Y</td>
<td>8</td>
<td>Year 5 9</td>
<td>225</td>
<td>Mount Isa 15</td>
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<td></td>
<td></td>
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<td>Year 6 6</td>
<td>128</td>
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<td>Year 7 1</td>
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<td>Year 8 8</td>
<td>137</td>
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<td></td>
<td></td>
<td></td>
<td>Year 9 1</td>
<td>12</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>Year 10/1</td>
<td>23</td>
<td></td>
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<td></td>
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<td>Total 26</td>
<td>540</td>
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<tr>
<td>Lockyer District</td>
<td>Y</td>
<td>9</td>
<td>Year 7 7</td>
<td>156</td>
<td>Gatton 6</td>
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<td></td>
<td></td>
<td></td>
<td>Year 8 4</td>
<td>61</td>
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<td></td>
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<td>Year 9 7</td>
<td>157</td>
<td></td>
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<td></td>
<td>Year 10 1</td>
<td>20</td>
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<td></td>
<td></td>
<td></td>
<td>Total 19</td>
<td>394</td>
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</tr>
</tbody>
</table>

1Funding partners continue to support the program for some Queensland communities. The fee for service program is available for schools not in those catchments.

2Mount Isa Year 10 class was a single “STEM careers” visit only.

This year through the Young Science Ambassador program Queensland students received ~20,000 hours of face-to-face contact with a scientist!
**FLYING SCIENTISTS**

**THE INITIATIVE**

Now in its third year, the Flying Scientist program is continuing to promote the importance of science and scientific research across Queensland, particularly in regional and remote centres. The program, delivered in partnership with the Queensland Office of the Chief Scientist is an excellent example of the opportunities provided through the Wonder of Science focus on strategic partnerships.

The Flying Scientists are typically early-career researchers keen to share their research with the public. Evaluation of the seven events held in 2018 was very favourable with more than 95% of attendees agreeing that it is useful and welcome in communities.

**2018 FLYING SCIENTIST EVENTS**

<table>
<thead>
<tr>
<th>Date</th>
<th>Location</th>
<th>Flying Scientist</th>
<th>Activities</th>
<th>Attendee numbers</th>
<th>Total numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 March</td>
<td>Gladstone</td>
<td>Dr Vince Dalbo</td>
<td>World Science Festival Community Day Cool Jobs Panel</td>
<td>4,849</td>
<td>5,249</td>
</tr>
<tr>
<td>9 - 10 March</td>
<td>Chinchilla</td>
<td>Dr Jonathon Peake</td>
<td>World Science Festival Community Events</td>
<td>2,394</td>
<td>2,394</td>
</tr>
<tr>
<td>7 June</td>
<td>Taroom</td>
<td>Dr Ken Dutton-Regester</td>
<td>Community Event School visits</td>
<td>35</td>
<td>131</td>
</tr>
<tr>
<td>13 August</td>
<td>Longreach</td>
<td>Dr Ken Dutton-Regester</td>
<td>School sessions for National Science Week Community Events</td>
<td>30</td>
<td>160</td>
</tr>
<tr>
<td>6 September</td>
<td>Weipa</td>
<td>Dr Fernanda Adame</td>
<td>Community Event School visits</td>
<td>116</td>
<td>273</td>
</tr>
<tr>
<td>9 October</td>
<td>Cloncurry</td>
<td>Dr Kaylene Butler</td>
<td>Community Event</td>
<td>13</td>
<td>13</td>
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<tr>
<td>28 November</td>
<td>Bundaberg</td>
<td>Dr Sri Srinivasan</td>
<td>Community Event</td>
<td>6</td>
<td>6</td>
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<tr>
<td>Total</td>
<td>7 Locations</td>
<td>6 Flying Scientists</td>
<td>4 Schools 7 Community events</td>
<td>283</td>
<td>8,226</td>
</tr>
</tbody>
</table>

**LAUREN STEPHENSON**

**DIRECTOR**

**The Office of the Queensland Chief Scientist**

“The Office of the Queensland Chief Scientist values our partnership with Wonder of Science to deliver the Flying Scientist program across the state to so many Queensland communities. We share the goal of sparking interest in STEM education for Queensland students which I was able to see first hand in Longreach when Dr Ken Dutton-Regester had students mesmerised with his sun safe message and activities. Well done Wonder of Science!”

**FLYING SCIENTIST COMMUNITY EVENT FEEDBACK**

- **97% agree or strongly agree**
  - the presentation highlighted the value of science and its application in communities
- **97% agree or strongly agree**
  - more events like this would be useful and welcome in my community

---

**Flying Scientists**

**Rural Queenslanders**

**Wonder of Science**

---

**Flying Scientist - Dr Ken Dutton-Regester**
PARTNERS

Wonder of Science would not be possible without our valued partners - thank you to all!

CONTACT

ROBYN BULL
DIRECTOR

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T: 0410 265 404
E: robyn.bull@uq.edu.au

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PARTNER WITH US

We welcome organisations, philanthropic foundations, universities, and other STEM agencies as partners.

For further information, please contact:
Robyn Bull, Wonder of Science Director.