



WONDER OF SCIENCE

2022 ANNUAL REPORT



FOSTERING A STEM CULTURE

WELCOME

2022 - A WONDERFUL YEAR FOR A WONDERFUL PROGRAM

In 2022, Wonder of Science has continued to thrive, reaching over 16090 people including 6411 students and over 200 teachers through our Challenge Task Program.

Our annual State Conference was once again a success with 164 students and over 300 people total attending. The event was also attended by several special guests, including Interim Queensland Chief Scientist Professor Bronwyn Harch, and Orica CTO Angus Melbourne, who addressed and welcomed the students.

We are pleased to have continued our ongoing partnerships with major partners including, Arrow Energy, GroundProbe, Orica and Rio Tinto, to bring Wonder of Science to schools across rural and regional Queensland. Our tertiary partners - UQ, QUT, Griffith University and USC continue to enable our outstanding Young Science Ambassadors to engage with schools, teachers and students (see Page 6).

We have also continued our rich partnerships with schools, such as Foxwell State Secondary College, in successfully delivering a women and girls in STEM mentoring program Gen-STEM (formerly G-STEM) program.

In 2022 we welcomed two new Program Officers: Alex McKelvey and Lenore Irvine whose diverse backgrounds in STEM and education have further contributed to the success of the program.

We hope you enjoy the 2022 report. With over 140 Young Science Ambassadors signed on for 2023, we are excited about the year ahead. The team looks forward to working with you in 2023 as we head into another year fostering STEM in Queensland schools!

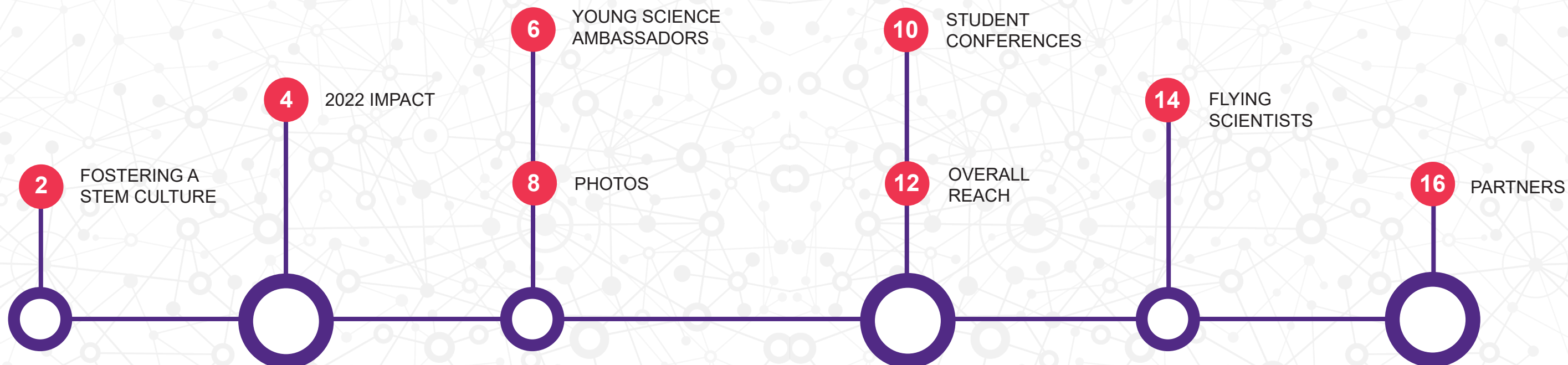
KAYLENE COOPER
MANAGER
WONDER OF SCIENCE



"The Wonder of Science program gave an equitable opportunity to all students in Year 4 who would not otherwise aspire to the excellence that WoS and their ambassadors model. By staff leading and students taking part in the Challenge Task, it further ignited undiscovered passions for Scientific Inquiry, planting seeds of realistic and achievable personal goals for each diverse learner. This also increased motivations and fuelled immediate and future ambitions. By collaborating with WoS, we are proudly meeting the Education Queensland strategies for Equity and Excellence, along with fostering courage, connectivity, and creativity."

Sue Marsden
Teacher
Mossman State School

David Dobbin
PPLC Project and STEAM Coordinator
Mossman State School



FOSTERING A STEM CULTURE

OUR MISSION

Wonder of Science fosters a STEM culture that empowers and increases capability for positive student and societal outcomes via access to high-quality, evidence-based STEM education. Specifically, fostering a culture where all students, their teachers, parents and other community members understand and value the importance and potential of Science, and STEM pathways and careers.

“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.”

National STEM School Education Strategy, 2015

THE WONDER OF SCIENCE APPROACH

- 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
- Develops students' deep understanding of STEM concepts and practices
- Supports teacher capability for quality STEM teaching and learning



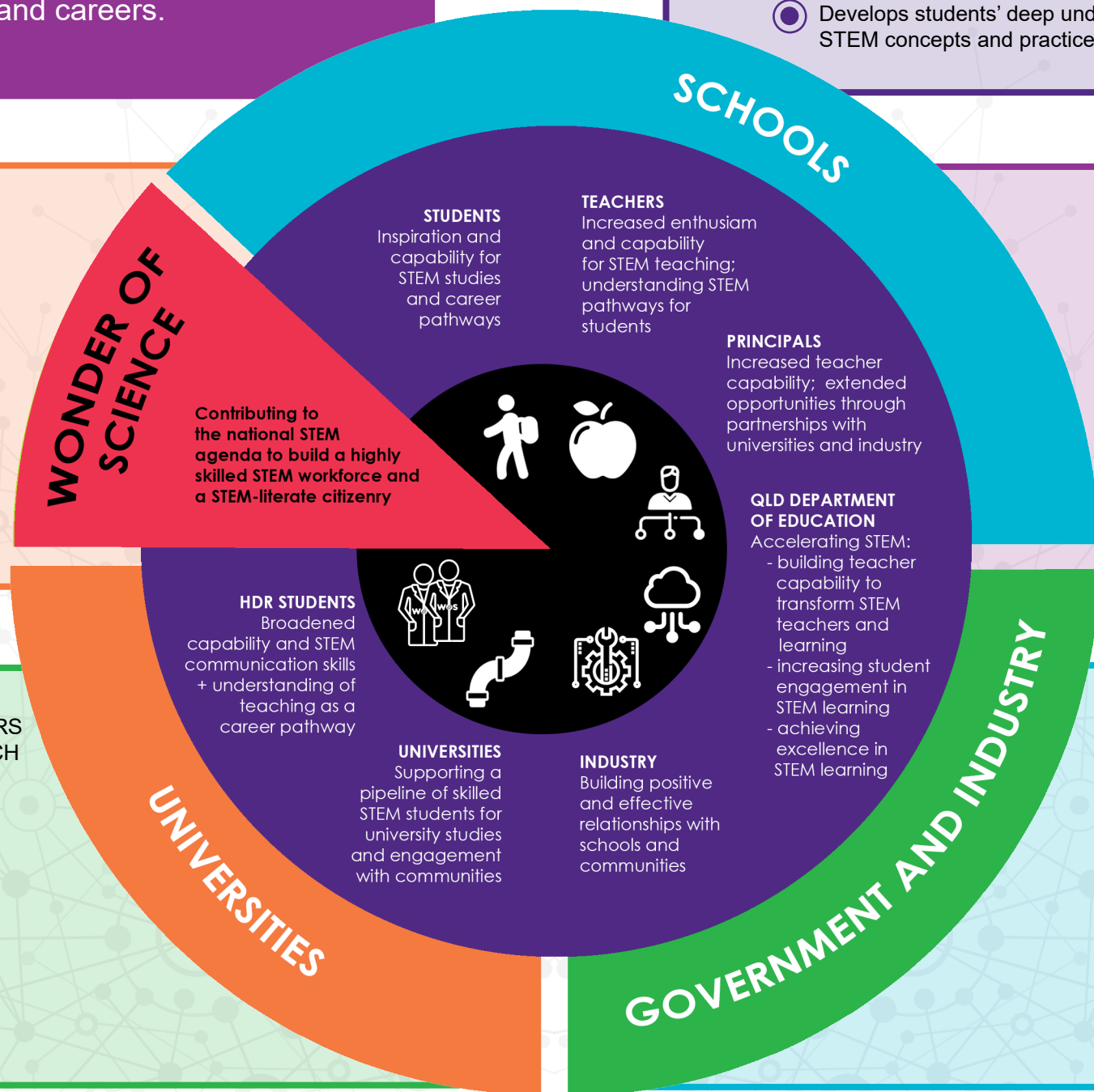
STEM INQUIRY - CHALLENGING, REAL-WORLD TASKS ALIGNED TO THE AUSTRALIAN CURRICULUM

- 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 LEVEL STUDENT SHOWCASE EVENTS

- Representative teams from participating schools are invited to present their Challenge Task response at a one-day Regional Conference
- Winning teams receive medals and a trophy for their school, and are then invited to State Conference held at a university campus each year



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 student conferences and other STEM experiences for participating schools

2022 IMPACT

2848

additional students reached via other STEM activities - e.g. the Flying Scientists Program



164

students attended State Conference

This year Wonder of Science reached **16135 people** including students, teachers, parents and other community members

STATE CONFERENCE 2022 CHAMPION TEAMS

Year 4 - Stretton State College



Year 5 - Kimberley Park State School



Year 6 - Stretton State College



Year 7 - Stretton State College



Year 8 - Bundaberg State High School



Year 9 - Peace Lutheran College



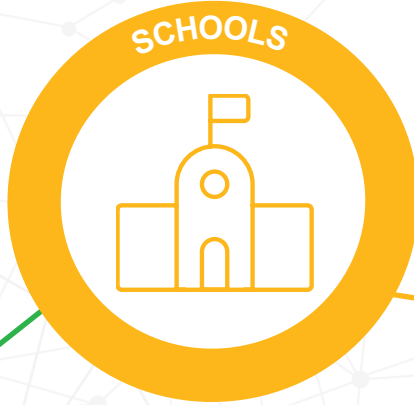
770

students attended a Regional Conference



STUDENTS IMPACTED THROUGH SCHOOL OR VIRTUAL VISITS

6411



137

Young Science Ambassadors

67%

of Young Science Ambassadors are female

59

schools from regional, remote and metropolitan Queensland

48

are state schools

44000

impressions on the Wonder of Science Twitter account

64

students reached through the Gen-STEM program conducted in partnership with Foxwell State Secondary College

62%

of participating schools are rated below the average socio-education advantage (ICSEA)¹

210

teachers reached

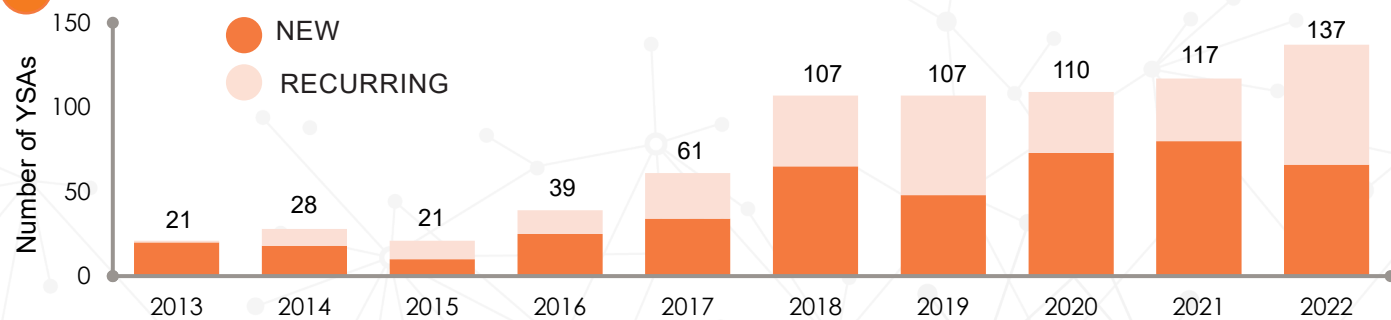
¹ www.myschool.edu.au (2022)

YOUNG SCIENCE AMBASSADORS™

46% of 2021 Young Science Ambassadors continued in 2022

The Young Science Ambassador program has reciprocal benefits. It provides enthusiastic and inspirational STEM role models in the form of Higher Degree Research (HDR) students to students and teachers in schools. Likewise, the program enriches the experience for the postgraduate students, with many demonstrating enhanced science communication skills and workforce preparedness, as well as an aptitude for teaching. This year, 137 Young Science Ambassadors from four partner universities participated in Wonder of Science.

32% of Young Science Ambassadors have participated for 2 or more years



Pam Engelberts
Young Science Ambassador
The University of Queensland



"In the first year of my PhD I joined the Wonder of Science program and it has been great from the start! Within the program you not only engage with students from all over Queensland, making them enthusiastic about STEM and helping them on their scientific journey, but WoS also offers numerous other opportunities for their ambassadors, such as network events. I've had a wonderful time in the last 4 years I've been involved and highly recommend the program to everyone!"



Young Science Ambassadors and special guests at the 2022 YSA Celebration Event

AMBASSADOR TESTIMONIALS



Anne Fernando Pulle
QUT

"Wonder of Science is a great platform to inspire young students with a passion towards science. Being a YSA has helped me to validate my skills as a STEM promoter. Also, it was always a fun filled experience to travel across QLD, have school visits and meet hundreds of students to enhance the quality of STEM teaching and learning."



Pankaj Ram Kaushik
Griffith University

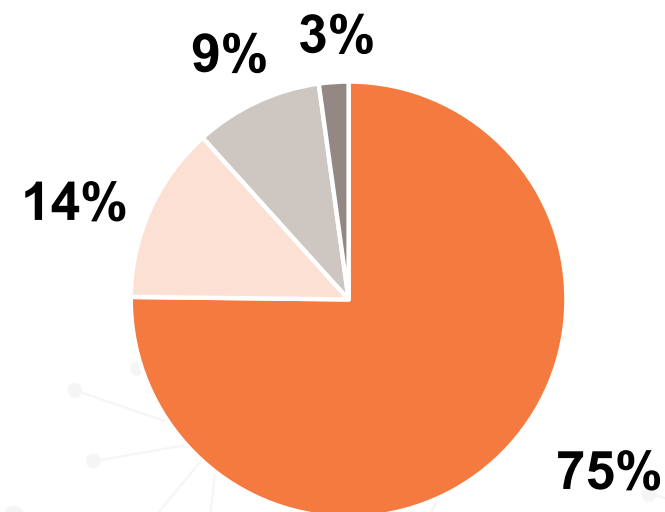
"I feel ecstatic and joyous about my experiences with WoS. I am grateful to WoS as I have experienced lots of learning and teaching with WoS sessions. Performing practically with students about science and engineering concepts helped to empower critical thinking and creativity."



Courtney Lewis
University of the Sunshine Coast

"It was great to be a part of Wonder of Science as a Young Science Ambassador this year. I loved the opportunity to travel around Queensland, especially to the more regional areas, and experience all the great science the students are getting involved in."

INSTITUTION BREAKDOWN



- The University of Queensland
- Queensland University of Technology
- Griffith University
- University of the Sunshine Coast

GENDER BREAKDOWN



67% Female YSAs

Emerald Regional Conference: Marble Run



Miles Regional Conference: Speed-meet a scientist event



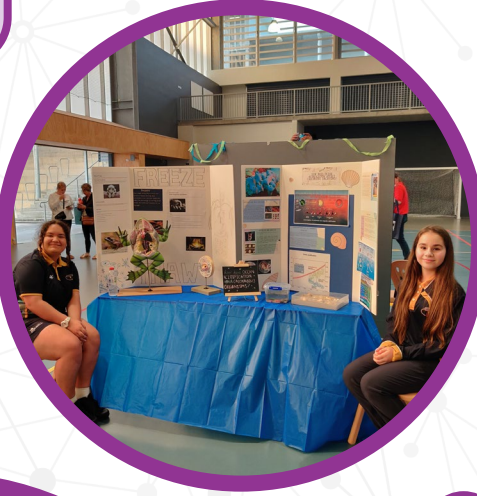
UQ Museum Scavenger Hunt: Metro Regional Conference



Mount Isa Regional Conference: Fruit DNA workshop



Gen-STEM: Up and Atom Event



Metro Primary Regional Conference: RioTinto workshop



Gen-STEM Year 7 UQ Visit: IMB VR Activity



Cairns Regional Conference: Year 6 Winners

Brightwater State School students: North Coast Regional Conference

FOSTERING A STEM CULTURE IN QUEENSLAND SCHOOLS

STUDENT CONFERENCES

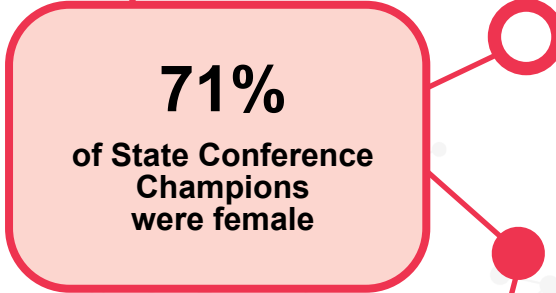


This year Wonder of Science held 10 Regional Conferences, including for an Emerald Regional Conference. Both students and teachers continue to positively engage with the student showcase conferences - as per the evaluation data opposite.

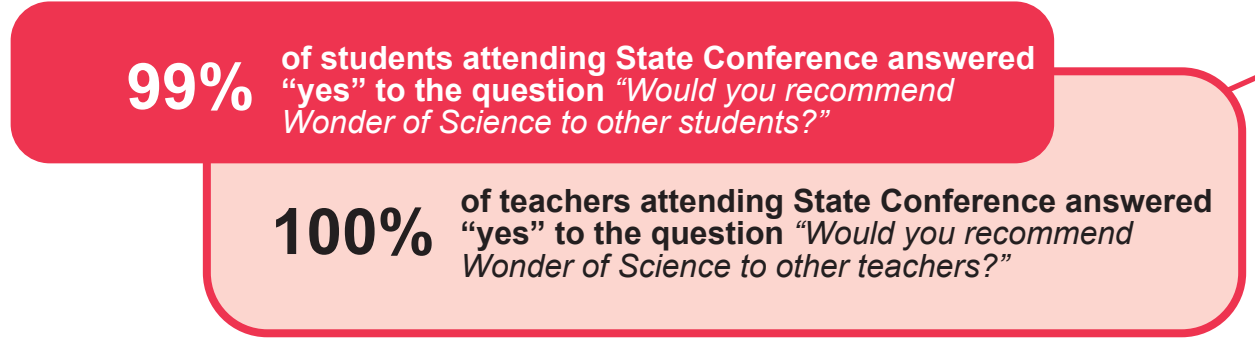
We have also noticed a trend of returning students year after year, such as the recipient of our inaugural STEM Excellence Award for outstanding achievements in the Wonder of Science program (see the story opposite).

More than 50% of teams who placed in 1st, 2nd or 3rd at State Conference were from rural and regional areas. This is a wonderful result to see.

Congratulations to all of the participating students and their teachers.



- THE 2022 STATE CHAMPION TEAMS**
- Year 4 - Stretton State College
 - Year 5 - Kimberley Park State School
 - Year 6 - Stretton State College
 - Year 7 - Stretton State College
 - Year 8 - Bundaberg State High School
 - Year 9 - Peace Lutheran College



STUDENT CONFERENCE EVALUATIONS



Wonder of Science inaugural STEM Excellence Awardee

Congratulations to the recipient of our first STEM Excellence Award for outstanding achievements in the Wonder of Science program. Renisha, from Spinifex State College, has participated in Wonder of Science for five years (through both primary at Happy Valley State School and secondary at Spinifex State College). During these five years (the maximum number of years possible), Renisha has been part of four regional winning teams and two State Conference Champion teams.



State Conference Year 5 Champions from Kimberley Park State School

OVERALL REACH

2022 WONDER OF SCIENCE STUDENT REACH

Cluster/Region	Funding model		Number of schools	Number of classes	Total students	Conference attendees			
	Funded	Fee				Name	Teachers	Students	
Darling Downs South West	●		9	Year 3/4	1	11	Miles	10	94
				Year 3/4/5/6	1	24			
				Year 4	1	23			
				Year 5	6	100			
				Year 5/6	3	39			
				Year 6	7	108			
				Year 7	3	9			
				Year 8	2	9			
				Year 9	3	13			
Total	27	336	Total	10	94				
North Coast	●		6	Year 4	5	138	Brightwater	6	70
				Year 4/5/6	1	25			
				Year 5	5	129			
				Year 6	6	153			
				Year 7	1	28			
				Year 8	1	28			
				Year 9	1	28			
Total	20	529	Total	6	70				
Lockyer	●	●	3	Year 7	1	21	Participated in Metro Regional Conferences		
				Year 8	12	293			
				Year 9	1	29			
				Total	14	343			
Metro	●		9	Year 4	3	78	Coomera	3	65
				Year 5	3	78	Metro Primary	7	84
				Year 5/6	3	75			
				Year 6	12	384	Mansfield	9	78
				Year 7	8	218	Metro Secondary	8	23
				Year 8	2	48			
				Year 9	2	48			
				Total	33	929	Total	27	250
				Mount Isa	●		5	Year 4	2
Year 5	3	76							
Year 6	4	93							
Year 7	8	200							
Year 8	8	200							
Year 9	8	176							
Total	33	786	Total	7	83				

David Noon
Chief Executive Officer
GroundProbe

"GroundProbe with Orica are thrilled to help young school students build their STEM skills in problem-solving, including critical, creative collaborative and ethical thinking. Together we hope to build a strong, local future workforce here in regional Queensland."

Cluster/Region	Funding model		Number of schools	Number of classes	Total students	Conference attendees						
	Funded	Fee				Name	Teachers	Students				
Bowen Basin	●		11	Year 3/4	10	202	Emerald	6	59			
				Year 4	6	123						
				Year 5	8	172						
				Year 5/6	7	154						
				Year 6	7	144						
				Year 7	2	33						
				Year 8	5	105						
				Year 9	2	45						
				Total	47	978				Total	6	59
				Far North Queensland	●					5	Year 3/4	2
Year 4	4	72										
Year 4/5	2	42										
Year 5	10	243										
Year 5/6	2	48										
Year 6	11	229										
Year 7	13	254										
Year 8	16	303										
Year 9	17	333										
Total	77	1570	Total				8	113				
Central Queensland	●		8	Year 4	5	118	Gladstone	12	101			
				Year 4/5/6	1	15						
				Year 5	8	209						
				Year 5/6	1	26						
				Year 6	12	288						
				Year 7	9	228						
				Year 8	1	28						
				Year 9	1	28						
				Total	38	940				Total	12	101
Total in WoS STEM inquiry program			59	289	6411	Conference	86	770				
Additional school visits (Flying Scientists)			14	Years P - 12	69	1216	N/A					
Additional reach through other STEM activities (Prep - Year 12)						1632	N/A					
Total			74	358	9259	Conference	86	770				

FLYING SCIENTISTS

The Flying Scientists program is provided in partnership with the Office of the Queensland Chief Scientist (OQCS). The Flying Scientists are early-mid career researchers who accompany Young Science Ambassadors into regional Queensland centres for community Science, Technology, Engineering and Mathematics (STEM) awareness events. In 2022, the Flying Scientists program was highly successful reaching over 7000 people. This year included a trip across Central Queensland featuring Wonder of Science Patron, Professor Ian Frazer.

Lauren Stephenson
Director
Office of the Queensland Chief Scientist

“Our office is pleased to support the Flying Scientists program that connects scientists with both regional schools and communities to inspire students’ subject choices and increase awareness of the great research being carried out by our outstanding Queensland scientists.”

FLYING SCIENTIST EVENTS

Date	Location	Flying Scientist	Activities	Attendees	Total Attendees
17 March	Cairns Distance Education	Prof Hugh Possingham Prof Ian Frazer AC FRA Dr Charith Rathnayaka Dr Alice Twomey	Virtual panel		67
26 - 29 April	Gladstone - Emerald	Professor Ian Frazer	Community Event School visits (5)	32 447	479
13 - 14 May	Townsville	Dr Alice Twomey	World Science Festival Community Events		2403
20 June	Longreach	Dr Alka Jagessar	Community Event School visits (3)	36 284	320
9 - 10 September	Ipswich	Dr Karishma Mody, Dr Natasha Janz, Dr Rebecca Larkin	World Science Festival Community Events		1761
8 - 10 October	Toowoomba	Dr Candice Jones	World Science Festival Community Events		2107
24 - 28 October	Monto	Dr Melanie Roberts	Community Event School visits (6)	15 527	542
7 events	Total	10 Scientists	7 Community Events 14 School visits (students and teachers)	6421 1258	7679

Science Teacher
Longreach State High School

“I just wanted to say how engaged the students were with this workshop. The interactions and activities allowed the students to explore and understand some of the different fields. I would most definitely recommend this activity again.”



Dr Alice Twomey
2022 Flying Scientist



“The World Science Festival in Townsville was fantastic with a huge turnout (2403 attendees)! I ended up losing my voice both days but it was great so many people were interested in our research.”



Professor Ian Frazer, Program Officer Sachini Fonseka and Young Science Ambassador Soi Law with Biloela State High School students on a Flying Scientist trip to Central Queensland

PARTNERS

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



PARTNER WITH US

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

For further information, please contact Wonder of Science

CONTACT

WONDER OF SCIENCE

www.wonderofscience.com.au
(07) 3443 1195
wonderofscience@uq.edu.au

UQ Graduate School
Level 6, Building 62
The University of Queensland
St Lucia, Brisbane
Queensland 4072

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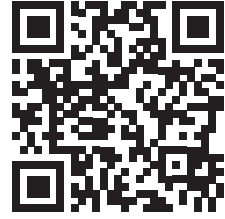
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Wonder of Science
UQ Graduate School | Level 6, Building 62
The University of Queensland
Brisbane Queensland 4072

www.wonderofscience.com.au

