



Office of the **Queensland Chief Scientist**

# Engaging Queenslanders in science strategy **2021–24**



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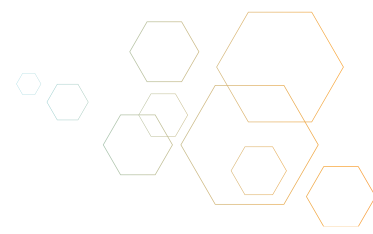
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# A message from the **Queensland Chief Scientist**



Science, in all its forms, lies at the heart all the greatest achievements of humanity. Building the pyramids, landing rovers on Mars, developing cures for diseases, and the green revolution that has fed the world, are all underpinned by science.

Science is not just about lab coats and microscopes, it's about new ideas, innovation, technology and commercialisation opportunities. It can change the world and it can create new industries, processes, products and solutions. Science includes maths, economics, First Nations peoples knowledge, social sciences, technology, and engineering—every possible way of gathering and deploying knowledge.

Science is critical to understanding and responding to current and emerging issues. It provides the evidence-based data that underpins critical decision-making, government policy, and the development and implementation of useful solutions to problems in areas as diverse as our environment, health, agriculture, and defence.

To grow Queensland's prosperity and harness our full scientific potential we will need informed and engaged communities that recognise scientific talents, and the positive impact science has on society. This includes promoting diversity in science by boosting participation of people in the community that are currently under-represented in science, for example women and First Nations peoples.

This need is particularly true when it comes to young people. The science engaged students of today, no matter their culture, faith, language, or gender, will be the great minds of the future. We need to nurture and inspire their natural curiosity and interest in science.

The time and effort we invest in science today will pay dividends in the future with opportunities and solutions to emerging challenges such as pandemics and climate change.

This strategy will contribute to a thriving and prosperous Queensland. Bringing both economic and social improvement through increased engagement and access to science, culminating in increased scientific literacy.

**Professor Hugh Possingham**  
Queensland Chief Scientist

*Science engagement, participation and innovation are the best ways we can increase health, wealth, equity, sustainability, liveability and prosperity.*

# **Vision:** An engaged and informed Queensland that values science, critical thinking, and evidence-based decision making in everyday life



The Engaging Queenslanders in science strategy (the strategy) has been developed by the Office of the Queensland Chief Scientist (the office) to recognise the impact science has on our lives as Queenslanders. Not only in terms of the cutting-edge research and translation of research underway across the state, but also in the way that critical thinking and evidence-based decision-making helps individuals, families, businesses, governments and communities make informed choices about our future.

Embracing scientific thinking, participating in scientific activities, and engaging with our scientific community fosters an informed and innovative Queensland, where people, businesses and governments harness science to overcome challenges and establish new endeavours.

The Queensland Government's vision for the future is a community that values science and recognises the positive impact it has on developing solutions to society's challenges.

We want a community where anyone can take advantage of arising scientific opportunities. This may include developing a new industry, accessing innovative resource management, manufacturing, or energy supplies. Being conscious to care for our environment and improve liveability so our great state can continue to attract people to work, live and play. A place where there is fair and equitable access to safe and nutritious food, underpinned by innovative farmers, fishers, foresters and businesses. A state where people are equipped with skills to take full advantage of dynamic and evolving work environments, and new opportunities to upskill and retrain as work environments change.

A community that is scientifically literate and engaged, will be better prepared to plan and react to future challenges and take advantage of new opportunities.

To achieve this vision, the strategy has three primary goals:

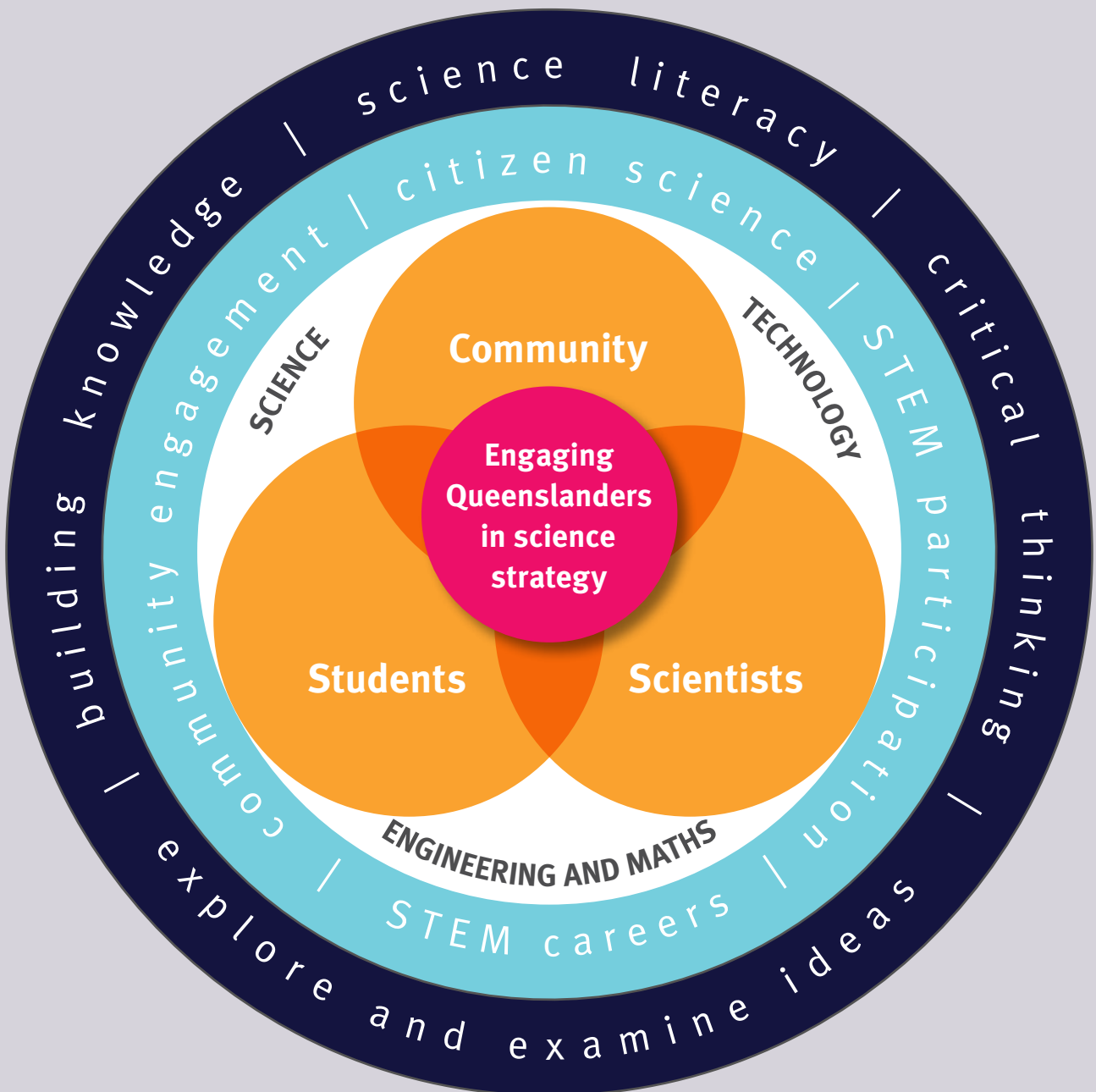
1. Increase student participation in STEM subjects and promote STEM careers
2. Increase community participation in citizen science to grow scientific literacy and contribute to scientific discovery
3. Increase awareness of Queensland's great science and grow opportunities for engagement with scientists.

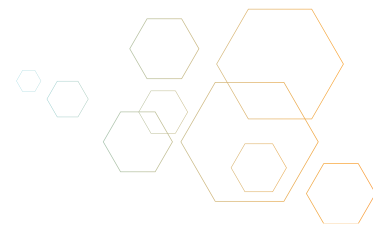
This four-year strategy will deliver initiatives that will increase growth in science visibility and engagement across Queensland. When Queenslanders engage with science, appreciation for science grows, its many benefits are realised, and we build a community that uses, respects and advocates for science.

# STEM linkages

The Engaging Queenslanders in science strategy aims to increase Queenslanders' awareness of the great outcomes that science gives us. Knowing even a little bit about science and the corresponding fields of technology, engineering and maths helps people think critically about the flood of unchecked information we are bombarded with every day.

At the heart of the strategy, we encourage students and the community to connect with scientists by participating in science events, citizen science projects and other STEM activities to bring about a greater appreciation of science and highlight the potential STEM careers on offer for our next generation.





## Goal 1: Increase student participation in STEM subjects and promote STEM careers

Nurturing the natural curiosity of young people and their fascination with science will help develop the researchers, discoverers, inventors, and innovators of the future.

Schools are uniquely placed to remove perceived barriers to science education and careers, while promoting the rewards and benefits of engaging and harnessing scientific thinking.

We must inspire students to incorporate this thinking into their education and everyday decision making, including the essential skills of critical thinking, weighing evidence, and building knowledge. This will lead to continued interest in science that is relevant for all career paths where science has a key role, including those beyond the traditional view of laboratories and white coats.

These skills, commonly referred to as scientific literacy, enable young Queenslanders to explore and examine ideas, and critically review information. This is growing more and more relevant as we now have access, and are being exposed, to more information than ever before with less quality control and barriers to publication.

To encourage participation in science activities and career pathways in which science has a key role, the office works with a range of education and training providers to encourage student uptake of science subjects, particularly for women and girls, regional students, Aboriginal and Torres Strait Islander students and other under-represented student groups.

We also collaborate with several stakeholders and partner organisations across the state, including the Department of Education, the Department of Employment, Small Business and Training, Inspiring Australia, and the Queensland Museum to deliver inspiring science opportunities and to promote further education and career pathways for students.

To celebrate National Science Week each year in August our office partners with the Department of Education and a range of other organisations to produce a series of events and activities to inspire more students to select STEM subjects and careers. Several of these events are delivered in regional locations and involve community participation.

Award winners from the Queensland Women in STEM Prize and the Young Tall Poppy Science Awards can help tell the story about the diversity of STEM careers on offer in Queensland when they attend events as key speakers or through promotional features.

Through inspiring students to participate in science and connecting with partners to ensure the greatest reach, we will increase the number of Queenslanders seeking science as a study, career or upskilling pathway.

In 2021, **72%** of parents would encourage their child to consider a science-based career, a **13% increase** from 59% in 2018

## Case study 1: Wonder of Science

Wonder of Science has partnered with Queensland schools for ten years supporting:

- teacher capability to transform STEM teaching and learning
- increased student engagement in STEM
- student excellence in STEM.

The Wonder of Science ambassadors (Queensland’s university PhD students) are inspiring and passionate role models for students by ‘bringing STEM to life in schools’.

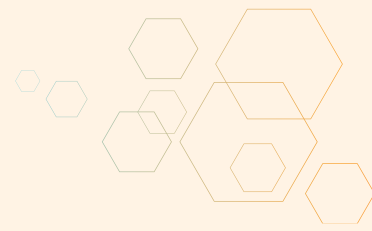
Over the past five years, the program reached 27,000 students across 50 schools annually. Seventy per cent of the students attending a regional conference indicate they have a ‘greater interest in studying STEM subjects in senior secondary after participating in Wonder of Science’. Also, 70 per cent of the Wonder of Science Ambassadors over the past four years have been female, and 70–80 per cent of the students in winning regional teams are female.

The program is a partnership between leading Queensland universities, Department of Education and industry.



*Young Science Ambassador Anicia Henne with St Joseph's College students in Cloncurry*





## Case study 2: Education experience programs

Queensland's natural attractions are unique educational opportunities for student immersion in live classrooms. Under the Department of Tourism, Innovation and Sport's subsidised programs, students undertake place-based learning activities to explore the Great Barrier Reef and Outback Queensland to learn about its rich history, pioneers, astronomy and dinosaurs.

The programs align to the Australian Curriculum and resources for schools and teachers are available to support alignment with curriculum themes.



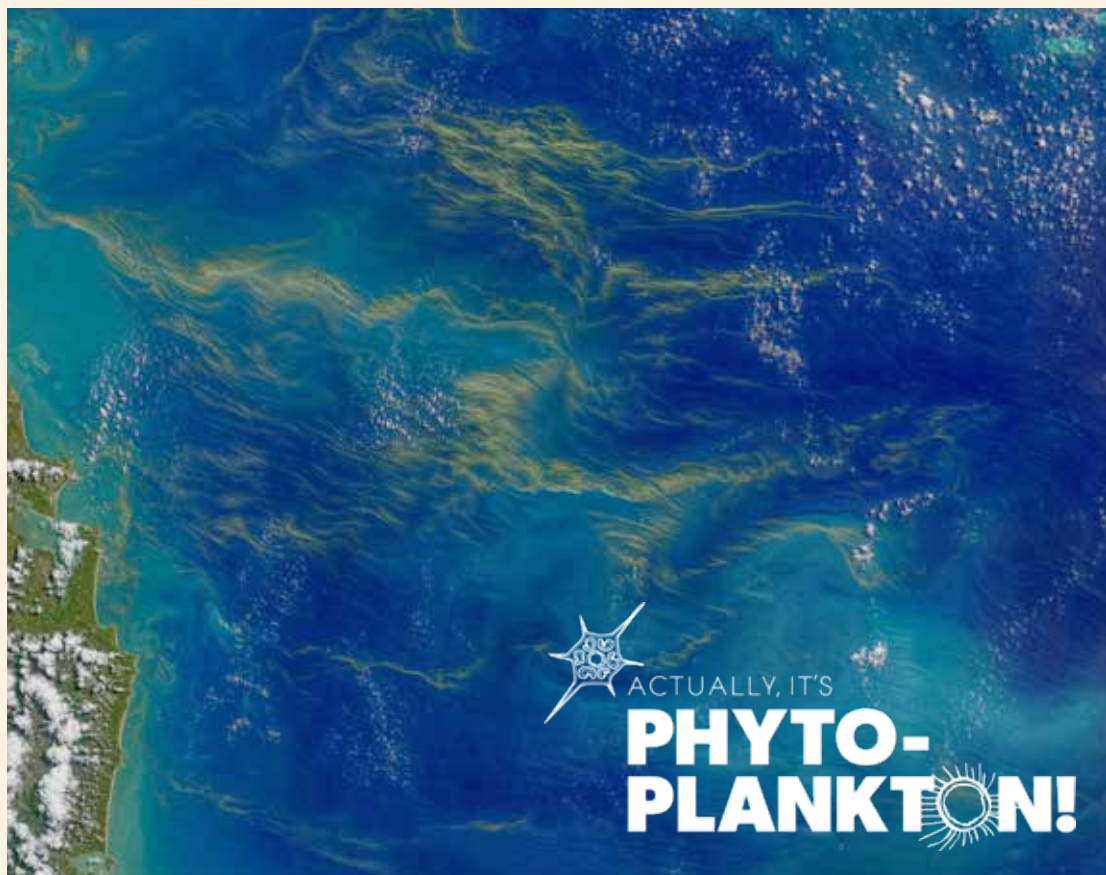
© Tourism and Events Queensland

## Case study 3: Actually, it's Phytoplankton!

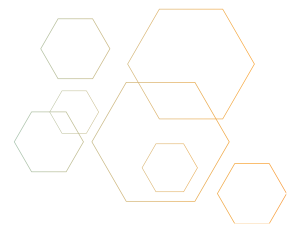
Go2Qurious has created an ocean science podcast for kids, teachers and families called Actually, it's Phytoplankton! Season 1 (supported by an Engaging Science Grant) explores NASA's PACE Mission (Plankton, Aerosol, Cloud, ocean Ecosystem) where hosts Jamie and Lachlan interview scientists and engineers working on NASA's most advanced ocean colour mission to date.

Season 2 (supported by a National Science Week Grant) explores the discipline of oceanography with six 'science lessons' that dive into the carbon cycle, the oceanic food web, ocean acidification, the physics of light in water, sci-art intersections, and DIY oceanography experiments. All episodes are accompanied by digital resource packs that include games, activities and visual guidance to help understand and engage with the science content.

Appearing on the podcast are leading experts from NASA Goddard Space Flight Center, The National Oceanography Centre University of Southampton, Virginia Institute of Marine Science, Brown University, Moss Landing Marine Laboratories, The Australian Institute of Marine Science, and Fathom iT Studios. Listen to the podcast: <https://www.go2qurious.com/podcast>.



*Go2Qurious Pty Ltd delivers ocean science podcasts*



## Goal 2: Increase community participation in citizen science to grow scientific literacy and contribute to scientific discovery

Citizen science provides a unique opportunity for community members to experience and learn about science while contributing to the scientific work taking place across Queensland.

People from all walks of life, including students, farmers and rural landholders, and older Queenslanders, can volunteer to work with scientists to collect data, catalogue specimens and make observations in programs that interest them. In doing so, they learn about scientific methods and scientific principles such as evidence gathering and identifying changes in environments and communities. All the while building relationships with scientists and the science community.

It also demonstrates the impact that science has across Queensland.

The strategy will promote citizen science to:

- *Raise awareness: work together to ensure Queenslanders understand citizen science opportunities, relevant projects, and rewards for participation.*
- *Remove barriers: make it as easy as possible for communities to find and participate in projects and for scientists to recruit and train citizen scientists.*
- *Grow the community: encourage participation to enable more citizen scientists and scientists to work together to make scientific discoveries.*

The strategy will inspire participation in citizen science, connect partners to increase participation, and assist researchers in their scientific projects to grow knowledge. Through knowledge and understanding, we will have a community that seeks science.

**44%** of Queenslanders who have heard of citizen science have also participated in a citizen science activity (equating to 10% of Queenslanders, up from 4% in 2018)



*Citizen scientists help map biodiversity across Queensland, collecting vital data for researchers and decision makers.*  
© QuestaGame.

## Case study 4: BioBlitz citizen science

A Queensland Citizen Science Grant recipient, Watergum, held their Gold Coast Bioblitz in December 2020 involving more than 350 citizen scientists.

The BioBlitz event was an intense period of biological surveying as it sought to record all the living species within Springbrook National Park over 48 hours. Citizen scientists learnt from experts in the field on how to identify species and assisted in collecting data during 47 surveys.

Participants recorded 645 species, including four new species unknown to science, and three species known to science but never before found in the Gold Coast area.

Scientists will use this information for future conservation and research projects.





## Case study 5: The Wild Macadamia Hunt

Queenslanders were asked to find old Macadamia trees and collect leaves for genetic analysis. The Healthy Land and Water project built on a Brisbane-focused pilot undertaken in 2018–19, with the number of participants more than doubling during the year-long project.

Citizen scientists came from 18 local government areas and 35 electorates, with 119 online records submitted through the Atlas of Living Australia data portal. As all species of macadamia are threatened in the wild, despite being common in cultivation, the information gathered from citizen scientists will be useful for future research. Already, the project identified some very interesting finds, including trees that are about 150 years old located well outside their natural distribution, and with genetics analysis indicating some originated hundreds of kilometres away.



## Goal 3: Increase awareness of Queensland's great science and grow opportunities for engagement with scientists

Scientific thinking and knowledge have critical roles to play in any evidence-based decision-making process.

Increasing engagement between science experts, community members and community leaders enables robust decision-making and improves access to real, 'on-the-ground' evidence and advice about community issues that need to be solved.

This will lead to the building of relationships that facilitate collaboration and information sharing which helps build trust and underpin the value placed on science. Scientists are uniquely skilled to provide advice to Queenslanders and are a valuable resource to participate in critical advisory bodies and forums.

Our first scientists, the Aboriginal and Torres Strait Islander peoples of Queensland, bring a wealth of traditional knowledge. Incorporating First Nations peoples priorities and perspectives in joint decision-making will foster science partnerships, build a shared future that recognises and respects traditional knowledge, and deepen our understanding of Australia's environment.

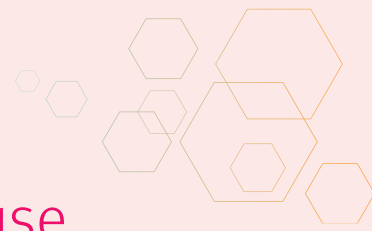
The Partner Up Queensland Regional Science Network (delivered by our office in collaboration with the Local Government Association Queensland) will engage with regional communities to raise awareness of Queensland's great science and grow engagement with the state's scientists. The resulting strategic partnerships will engender ownership and participation in science. It will also facilitate and strengthen the relevance of science to First Nations peoples.

By connecting researchers with partners such as local authorities, regional universities, local citizen science groups and other businesses, the strategy will inspire Queenslanders to be creative and innovative to deliver solutions to both current and future problems.

The Engaging Science Grants program to be delivered by our office also contributes to increasing the reach of science engagement across Queensland. The program funds organisations to develop and deliver science engagement and communication projects, events, and citizen science activities.

As mentioned in Goal 2, citizen science programs are a great way to increase public participation in Queensland scientific research. These programs enable rapid and vast collection of scientific data to support scientists, organisations and community groups gather information to tackle important issues for Queensland.

**79%** of Queenslanders believe scientific development has had a positive impact on society



## Case study 6:

# Partnering with First Nations peoples to use traditional knowledge in biodiscovery

The *Biodiscovery Act 2004* was amended in 2020 to establish protections for First Nations peoples' traditional knowledge and align with international standards. The Act now requires that a person take all reasonable and practical steps to only use traditional knowledge for biodiscovery with the agreement of the custodians of the knowledge.

These reforms encourage science partnerships between First Nations peoples and biodiscovery entities. For example, the Dugalunji Aboriginal Corporation and The University of Queensland are collaborating to harness traditional knowledge of native spinifex grass to develop a variety of high-value nanotechnology products ranging from surgical gloves to road surfacing. James Cook University and the Mbabaram Aboriginal community are also investigating how traditional knowledge about the anti-inflammatory properties of rainforest plants could lead to new drugs.



## Case study 7: The Flying Scientists program

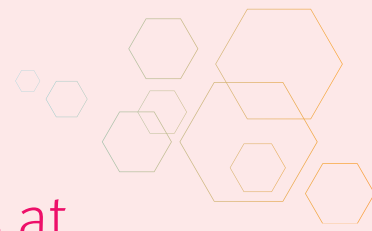
This program is a partnership between the office and Wonder of Science. It provides access to some of Queensland's leading scientists for regional and remote communities. The Flying Scientists are building Queenslanders' awareness and understanding of the impressive scientific research happening in our own backyard. The program has reached more than 22,000 Queenslanders since inception in 2016.

The Queensland Chief Scientist, Professor Hugh Possingham travelled with the Flying Scientists to Emerald for a series of activities, including school visits and an evening event attended by 130 community members. The Emerald events also highlighted CQUniversity's citizen science project, Parasites in the Wild funded by the office under a Queensland Citizen Science grant. This project involves collecting and identifying ticks from farmland in the Central Highlands region.



*Professor Hugh Possingham with Dr Christina Zdenek and her Woma python, Netflix, Dr Anita Milroy and Saba Sanai at Emerald State School during the Emerald Flying Scientists visit*





## Case study 8:

# Exploring partnerships and opportunities at Partner Up Queensland event

The Partner up Queensland Regional Science Network initiative will build on regional networks supported by the Queensland Museum Network through the Inspiring Australia Regional STEM Hubs.

In May 2021, the Office of the Queensland Chief Scientist hosted a Partner Up Queensland event in Townsville to discuss collaboration opportunities between researchers and industry. Sixty-one guests engaged in discussions about careers, mentoring and professional development opportunities.

Delivered in partnership with James Cook University, it included a presentation from the Queensland Chief Scientist, Professor Hugh Possingham. He spoke about his considerable success in raising research investment from varied industries, noting challenges he faced and how these were overcome. Cubic Defence Australia delivered a presentation about their collaboration with James Cook University that resulted in successful defence solutions.



# Snapshot of engaging science programs

Several Queensland Government agencies and partners deliver programs to meet the goals of this strategy. The programs currently available are listed below with hyperlinks for more information. This list is not comprehensive and may be subject to change over the life of the strategy.

- **Goal 1:** Increase student participation in STEM subjects and promote STEM careers
- **Goal 2:** Increase community participation in citizen science to grow scientific literacy and contribute to scientific discoveries
- **Goal 3:** Increase awareness of Queensland’s great science and grow opportunities for engagement with scientists

Initiative	Goals		
	1	2	3
Office of the Queensland Chief Scientist			

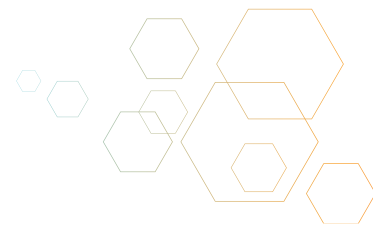
**Young Tall Poppy Science Awards** (delivered with Australian Institute of Policy and Science) ■   ■

The Tall Poppy Campaign was created in 1998 by the Australian Institute of Policy and Science to recognise and celebrate Australian intellectual and scientific excellence and to encourage younger Australians to follow in the footsteps of our outstanding achievers. It has made significant achievements towards building a more publicly engaged scientific leadership in Australia.

The Tall Poppy Campaign recognises the achievements of Australian scientists through awarding the prestigious annual Young Tall Poppy Science Awards and the biennial CSL Florey Medal.



*Professor Hugh Possingham along with the 2021 Queensland Young Tall Poppy Science Award winners who attended the event. Two Tall Poppies were unable to attend the night.*



Initiative	Goals		
	1	2	3

**Queensland Women in STEM Prize**



Delivered in partnership with the Queensland Museum Network and the Office for Women, the Queensland Women in STEM Prize recognises Queensland women who make an outstanding contribution in the fields of science, technology, engineering and maths (STEM).

STEM professionals can win one of three cash awards to be used for professional development:

- Judges’ Award awarded to the most meritorious applicant
- Inclusion Award awarded to the most meritorious Aboriginal and Torres Strait Islander applicant, applicant with a disability, or applicant who is a carer.
- Highly Commended Awards for meritorious applicants, as determined by the judges.

PhD and Masters students or women who have been in a STEM profession for less than 12 years are eligible to apply.



*2021 Queensland Women in STEM Prize winners with Queensland Chief Scientist Professor Hugh Possingham (note Claire Yap was representing Chloe Yap who was unable to attend)*

**Engaging Science Grants (incorporating the Queensland Citizen Science Grants)**



Supports science engagement and communication projects, events and citizen science activities that increase the reach and impact of science in Queensland. Past recipients have delivered science shows, educational workshops, drone and coding sessions and a range of citizen science projects.

**Flying Scientists**



The Flying Scientists program is delivered in collaboration with the Office of the Queensland Chief Scientist. The ‘Flying Scientists’ are early career researchers that accompany Young Science Ambassadors into regional Queensland centres for school visits and community STEM events. The initiative has been developed to address the shortage of science-related events convened outside South East Queensland, refer case study #7 on page 16.

Initiative	Goals		
	1	2	3

**Queensland Citizen Science Grants (incorporated in the Engaging Science Grants)**



The grants are designed to support scientists, organisations and community groups to conduct citizen science projects that tackle important issues in Queensland.

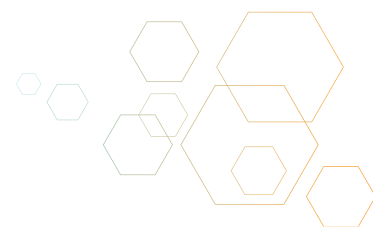
The Queensland Government’s vision is to encourage Queenslanders’ awareness and participation in citizen science projects. Discoveries made from citizen science can improve scientific knowledge, engage people directly with the scientific process, empower people to understand aspects of their own communities, and provide vital information for decision makers.

The Queensland Citizen Science Grants actively engage citizen scientists and address one or more of the following:

- raise awareness: work together to ensure the Queensland community understands citizen science and the projects which are relevant to Queensland
- make it easy: make it easier for our community to find and participate in projects and for scientists to recruit and train citizen scientists. This includes making it easy to upload, find and use the data
- grow the community: grow our community of citizen scientists and scientists working together to make scientific discoveries.



*Conservation Volunteers Australia, Golden Beach cleanup*



Initiative	Goals		
	1	2	3
<p><b>Partner Up Queensland Regional Science Network</b> (with a range of stakeholders including Department of Tourism, Innovation and Sport, Local Government Association Queensland, universities and others) is currently under development to increase regional science engagement.</p>	■	■	■
<p><b>National Science Week</b></p> <p>National Science Week is Australia’s annual celebration of science and technology. Running each year in August, it features more than 1000 events around Australia, including those delivered by universities, schools, research institutions, libraries, museums and science centres.</p> <p>These events attract a wide audience from children to adults, and science amateurs to professionals. Over one million people participate in science events across the nation. It provides an opportunity to acknowledge the contributions of Australian scientists’ to the world of knowledge. It also aims to encourage an interest in science pursuits among the general public, and to encourage younger people to become fascinated by the world we live in.</p> <p>The Office of the Queensland Chief Scientist works with partners to celebrate and promote events during National Science Week.</p>	■		■
<p><b>Strategic Visualisation Tool</b></p> <p>Queensland’s well-developed and integrated science and innovation capabilities support the growth of emerging knowledge-intensive industries.</p> <p>The Strategic Visualisation Tool helps users to understand Queensland’s research strengths and capabilities in seven emerging industries with global growth potential.</p> <p>Based upon the CSIRO New Smarts report and the Queensland Science Capability Directory the Strategic Visualisation Tool shows the strategic linkages between research organisations, innovation precincts and manufacturing hub.</p>			■
<b>Department of Education</b>			
<p><b>Schools of the future STEM Strategy</b></p> <p>The Schools of the future strategy to support STEM education in Queensland state schools includes initiatives to target three key areas:</p> <ul style="list-style-type: none"> <li>• building teacher capability to transform STEM teaching and learning</li> <li>• engaging more students in STEM including girls and Aboriginal and Torres Strait Islander students</li> <li>• achieving excellence in STEM learning.</li> </ul> <p>The STEM hub connects students, parents and carers to resources, news and events.</p>	■		

Initiative	Goals		
	1	2	3

**STEM Girl Power Initiative**

■ ■

STEM Girl Power aims to encourage girls to participate in STEM-focused activities at a camp in Year 10. Students then return to school and inspire others to participate in STEM as Year 10 ambassadors and Year 11-12 alumni students.

During the camp, students undertake STEM workshops including visiting laboratories of universities and research institutes. Students hear about STEM careers from guest speakers and role models. As STEM ambassadors when they return to school, students lead or participate in science activities, for example to promote National Science Week.



**Queensland Virtual STEM Academy**

■ ■

The Queensland Virtual STEM Academy is a network of school hubs across Queensland that deliver extension programs for the best and brightest students in Years 5 to 9.

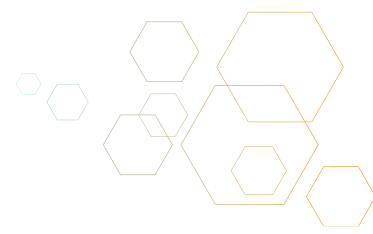
Through innovative online learning programs students access specialist STEM experiences and opportunities and are connected to cutting edge developments in STEM through industry and university partners.

**Solid pathways**

■ ■

The Solid Pathways STEM program is an extension program that assists schools to support eligible high performing Aboriginal and Torres Strait Islander students in Year 4 to Year 6 for continued academic success and university studies.

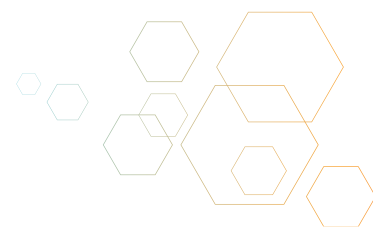
The program delivers quality online learning that develops students' STEM capabilities and nurtures their scientific curiosity through critical and creative thinking.



Initiative	Goals		
	1	2	3
<p><b>Premier’s Coding Challenge</b></p> <p>The Premier’s Coding Challenge is an annual state wide initiative for all Queensland students in Years 3 to 10 and aims to encourage an interest in STEM.</p> <p>Each year the challenge provides an opportunity for students to design and code an interactive and innovative digital solution to raise awareness of important themes such as cyber safety, cybersecurity or digital wellbeing.</p> <p>Students develop an app, game, animation or website, and submit a short video to showcase their entry. Entries are judged by a panel of industry and technology education experts.</p>	■		
<p><b>Peter Doherty Awards</b></p> <p>The Peter Doherty Awards for Excellence in STEM Education recognise students, teachers, support officers, schools and education partners (volunteers, mentors and organisations) who demonstrate an outstanding and innovative contribution to STEM education in Queensland.</p>	■		
<p><b>SPARQed</b></p> <p>SPARQ-ed (pronounced spark ed) is a unique educational facility established in collaboration between the Department of Education and The University of Queensland. The cutting edge facility features a fully equipped physical containment level 2 biomedical teaching laboratory and learning centre, located at the Translational Research Institute in Brisbane, providing school students a practical introduction to biomedical research.</p>	■		
<p><b>Wonder of Science</b></p> <p>The Wonder of Science program is building knowledge, passion and enthusiasm for science and technology in Queensland’s young people. It is creating aspiration for STEM education—thus generating capacity for technical innovation in Queensland and ultimately, Australia.</p>	■		■
<p><b>CSIRO STEM Professionals in Schools</b></p> <p>This program facilitates flexible, ongoing partnerships between STEM professionals and teachers in schools across Australia.</p> <p>The program aims to:</p> <ul style="list-style-type: none"> <li>bring the practice of real-world STEM to teachers and students</li> <li>provide teachers with opportunities to strengthen their knowledge of current STEM practices and applications</li> <li>increase STEM professionals’ engagement with the broader community, raising public awareness of their work and its social and economic importance</li> <li>inspire and motivate teachers and students in the learning of STEM, and broaden awareness of the variety of careers that are available within STEM fields.</li> </ul>	■		■

Initiative	Goals		
	1	2	3
<b>Queensland Museum Network</b>			
<p><b>World Science Festival Brisbane</b></p> <p>World Science Festival Brisbane provides Queensland Museum Network (QMN) an opportunity to engage audiences outside the traditional education sphere and promote a whole of life ‘entanglement’ with STEM—delivering on the QMN mission of creating authentic and compelling experiences and stories that inspire, enrich and empower. The festival is delivered to regional Queensland throughout the calendar year under the banner of World Science Festival Queensland.</p>	■		■
<p><b>SparkLab, Sciencentre</b></p> <p>Queenslanders can ignite their imaginations in <i>SparkLab</i>, an interactive STEM space based at Queensland Museum, Southbank. The interactive exhibits allow visitors to follow their curiosity and bring out their inner scientist as they question, investigate and wonder about the world around them.</p>	■		■
<p><b>Future Makers</b></p> <p>Future Makers is an innovative partnership between Queensland Museum Network and Shell’s QGC business, who joined forces to increase awareness and understanding of the value of STEM in Queensland schools and communities. The partnership builds on research and best practice to increase students’ uptake of and performance in STEM-related subjects and careers through educational resources, teacher professional development and inspirational community events.</p>	■		■
<b>Department of Employment, Small Business and Training</b>			
<p><b>Gateway to Industry Schools program</b></p> <p>The Gateway to Industry Schools program is a key industry engagement strategy for the department and aligns with the department’s vision for all Queenslanders to have the skills and opportunities to participate and prosper in the economy.</p> <p>The program builds partnerships between schools and industry to enable young people to acquire the knowledge, skills and attributes to participate effectively in the Queensland economy and provides opportunities for industry and the education sector to work together to deliver outcomes for students, local communities and businesses.</p>	■		





Initiative	Goals		
	1	2	3
Department of Agriculture and Fisheries			

**Agribusiness Gateway to Industry Schools program** ■

The Agribusiness Gateway to Industry Schools program was developed to combat skills shortages across agribusinesses and improve the attraction and retention of skilled employees to ensure a sustainable workforce into the future. The program is funded by the Department of Employment, Small Business and Training and administered by the Department of Agriculture and Fisheries.

The project aims to help young people make a successful transition from school into further education and/or employment in agricultural related industries. The project promotes partnerships between schools, training providers, universities and industry to link young Queenslanders with development and career opportunities.

Around 35 mentors (extensions officers, biosecurity officers and agricultural scientists) support schools in the Agribusiness Gateway to Industry Schools project to conduct science-based agricultural activities. With the help of small grant funding, schools are able to utilise science to undertake modern agriculture. One of these funding recipients, Gympie State High School, is using its grant to design and install an individualised feed delivery system to use with their cattle herds. Data from the feed system, combined with GPS tracking data, will allow students to gather a more holistic view of cattle feeding behaviours, design customised feeding regimes for each animal, evaluate their relative performance against industry benchmarks and will result in less wastage of feed.

**Hermitage Research Facility Schools Plant Science Competition** ■

The department’s Hermitage Research Facility Schools Plant Science Competition offers engaging ways for students to gain understanding and skills in key areas identified within the Australian science curriculum. Encouraging the next generation of people who will be involved in agricultural/science careers is crucial to how we will face the future and is a key purpose of the competition.

**Female mud crab citizen science project** ■

The mud crab citizen science project will help to assess and sustainably manage Queensland mud crab fisheries into the future.

The project aims to:

- examine the scale and extent of genetic mixing of mud crabs in South East Queensland and northern New South Wales
- tag mud crabs to provide regional estimates of growth, movement and natural mortality, which are important factors in quantitative stock assessments
- develop a cost-effective method to monitor key biological information on regional mud crab populations.

Initiative	Goals		
	1	2	3

**Asian Spined Toad citizen science project**



Volunteers from bushcare groups and ‘FrogWatch’ have joined forces with Biosecurity Queensland, James Cook University and the Port of Brisbane to monitor acoustic traps designed to lure Asian Spined Toads—an exotic invader with the potential to rival the cane toad.

Asian Spined Toads are currently absent from Queensland and Australia but are regularly detected and destroyed by quarantine authorities around ports, after hitch-hiking into the country in shipping containers and other goods.

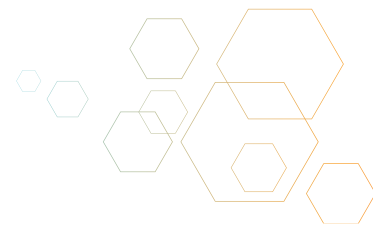
The toads are ecologically well-suited to much of Queensland and could become another unwanted pest, unless they are detected early and eradicated before they spread.

Australian Government quarantine authorities have done a great job keeping the toads out of Australia, but we still need to take precautions and ensure post-border surveillance, in case some slip through.

Traps will be installed and monitored by volunteers and Biosecurity Queensland at high-risk sites around the Port of Brisbane and Rocklea in Brisbane.



*Citizen volunteers and scientists working together to check pest traps*



Initiative	Goals		
	1	2	3
Department of Tourism, Innovation and Sport			

**Advancing Regional Innovation Program** ■

Advance Queensland’s Advancing Regional Innovation Program aims to turn our regions into hubs for innovation and enterprise. It will enable local entrepreneurs, business leaders and key industries to collaborate closely with government to harness innovation and unlock business potential, strengthen existing industries and prepare regional Queenslanders for jobs of the future.

The program’s tailored approach helps to connect local efforts, harness existing strengths and build regional capability. The intention is to build networks of innovative communities across the state that reflect the diversity of Queensland’s regions, draw people together and boost grassroots activities.

**Nature Play Queensland**

**Nature Play Queensland BioBlitz** ■ ■

The Nature Play Queensland BioBlitz is a citizen science project where participants conduct a ‘bioblitz’—a period of biological surveying to record all the living species within a designated area—which helps researchers and scientists paint a concise picture of living organisms spanning the entire state of Queensland.

Nature Play Queensland created curriculum aligned lesson plans for Prep to Year 6 students in consultation with the Office of the Queensland Chief Scientist and the Department of Education STEM team.

**Queensland Herbarium**


**Weed Spotters Network** ■

The Weed Spotters Network actively engages with the community to tackle new and emerging weeds and limit their negative environmental, social and economic impacts across Queensland. Since its inception in 2006, Weed Spotters has grown to become Queensland’s largest biosecurity citizen science collaboration, incorporating the Queensland Herbarium, Biosecurity Queensland, local governments and 1800 participants across the state. Weed Spotters are focussed on finding, identifying and reporting occurrences of priority weeds at an early stage, so that preventative action can be taken.



For more information about the Office of the Queensland Chief Scientist:

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