

FUTUREMAKERS

STEM INVENTORS CHALLENGE

GLADSTONE REGION



A 10-week STEM and Design & Technologies program
for **Primary** (Years 5–6) and **Secondary** (Years 7–10)

THE 2026 CHALLENGE:

Spectacular Species Solutions

Investigate a species that impacts Queensland and design a STEM-based solution to improve environmental outcomes.

Spectacular Species Solutions explores the integrative thinking, delicacy and innovation required for effective environmental management. It challenges students to think about their environment as a complex and connected system. Students will explore species control and conservation strategies, and design a SPECTACULAR solution to a problem impacting or caused by a Queensland species.

The STEM Inventors Challenge is open to students in **Primary Years 5–6** and **Secondary Years 7–10**, based in the **Gladstone** local government area (surrounding regions may be considered). **Participation is free.** Teachers are encouraged to enrol their classes, STEM clubs, or supervised teams of motivated students. Home Education students are welcome.

For the first time, **Primary** and **Secondary** students will compete in **two separate categories**.

Working in groups of 2–4, students will have **10 weeks** to:

- Learn relevant Science and Design & Technology principles from provided classroom activities
- Devise a STEM-based solution in response to the 2026 challenge
- Create a prototype and informative tabletop display board that demonstrates key capabilities or design aspects of their proposed solution.

Students are encouraged to use recycled products or materials they already own in their prototype such as Lego, cardboard, craft supplies or 3D printing.

The students' prototype exhibitions will be judged by an expert panel during a celebratory **STEM Inventors Showcase** event at Central Queensland University, on **Friday 11 September**.



WHAT'S INCLUDED?

- A 45-minute launch webinar with Queensland Museum staff to introduce the challenge, give inspiring examples and outline steps to success
- Teaching manual with 10 weeks of hands-on, curriculum-aligned activities, as well as challenge judging criteria
- Student activity booklet for each participating student
- A tri-fold tabletop display board for each student team
- Optional mentoring opportunity with Queensland experts, including scientists, engineers and designers.
- Exclusive display space for each student team at the STEM Inventors Showcase event at Central Queensland University. Snacks provided. Award winners will be announced on the day.

PRIZES:

A Winner, Highly Commended, Commended and People's Choice Award will be announced for each category (Primary and Secondary).

Award	School Prize	Student Prize (each team member)
Winner	\$1,000 cash and prize pack of Queensland Museum publications	Trophy, certificate and large STEM prize pack
Highly Commended	\$500 Queensland Museum voucher *	Certificate and small STEM prize pack
Commended	\$150 Queensland Museum voucher *	Certificate and STEM prize
People's Choice Award	Prize pack of Queensland Museum publications	Certificate and STEM prize

All participating students will receive a certificate.

* Vouchers can be used towards items from the Queensland Museum shop (online or in-store), school programs (including online incursions) and exhibitions at Queensland Museum Kurilpa, Cobb+Co and Rail Workshops.

STEM MENTORING SESSIONS

The Queensland Museum team can connect your students with a STEM Mentor who can provide helpful ideas, feedback and support. The STEM Mentors are working professionals in science, engineering or design.

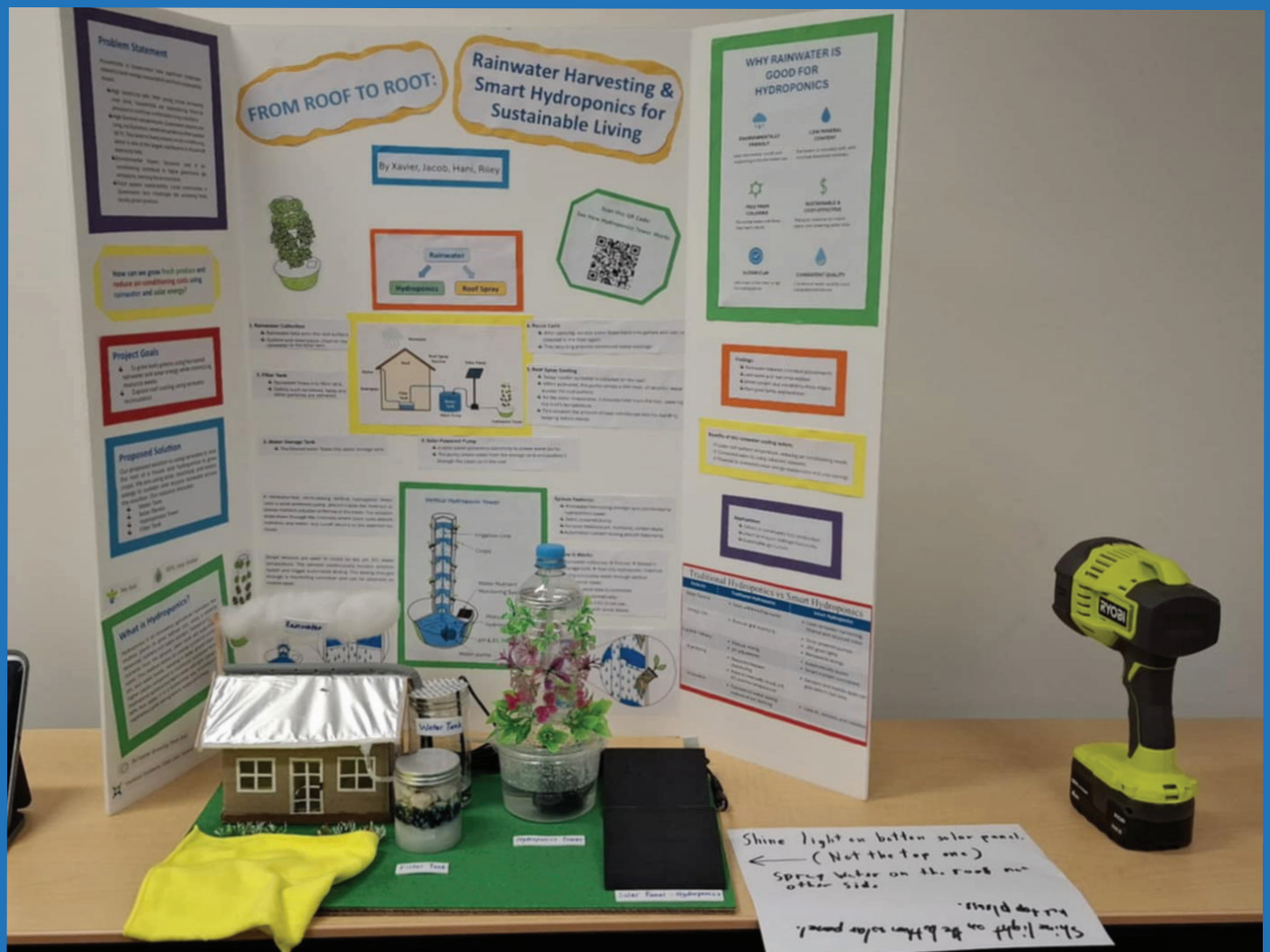


STEM INVENTORS CHALLENGE WINNERS 2025 GLADSTONE REGION

“From Roof to Root”

Year 8 Toolooa State High School Students Hani, Xavier, Riley and Jacob won first prize with their working prototype called *From Roof to Root* — a rainwater hydroponics home cooling system.

The students’ clever design was created to reduce the reliance on air conditioning in the intense Queensland heat. Solar energy pumps recycled water into a hydroponic tower, used to sustainably grow leafy vegetables in the backyard. Their prototype, displayed at World Science Festival Queensland 2025, was activated by shining torchlight onto small solar panels.



STUDENT TESTIMONIALS

“The activities we did got me thinking and the discussions we had opened my eyes.”

“This has allowed me to see that there are many career options in STEM, including an inventor.”

*“It was fun and I would like to try this again.
Highly recommend.”*

“The mentors were supportive and offered great feedback.”

“I have learned skills to overcome challenges.”

“Each process and step of designing an idea was fun.”

“I believe that the skills on how to create a design solution will be extremely helpful in future STEM projects.”



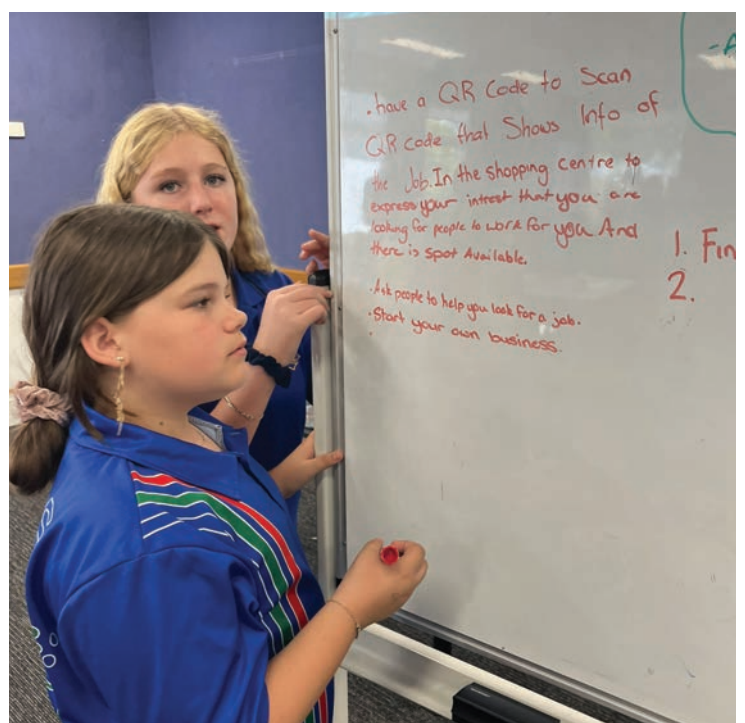
TEACHER TESTIMONIALS

“It was great and got the students’ brains thinking the right way ... I loved the teachers’ guide and the student booklets too, (they) were clear and easy to follow.”

— CHINCHILLA STATE HIGH SCHOOL

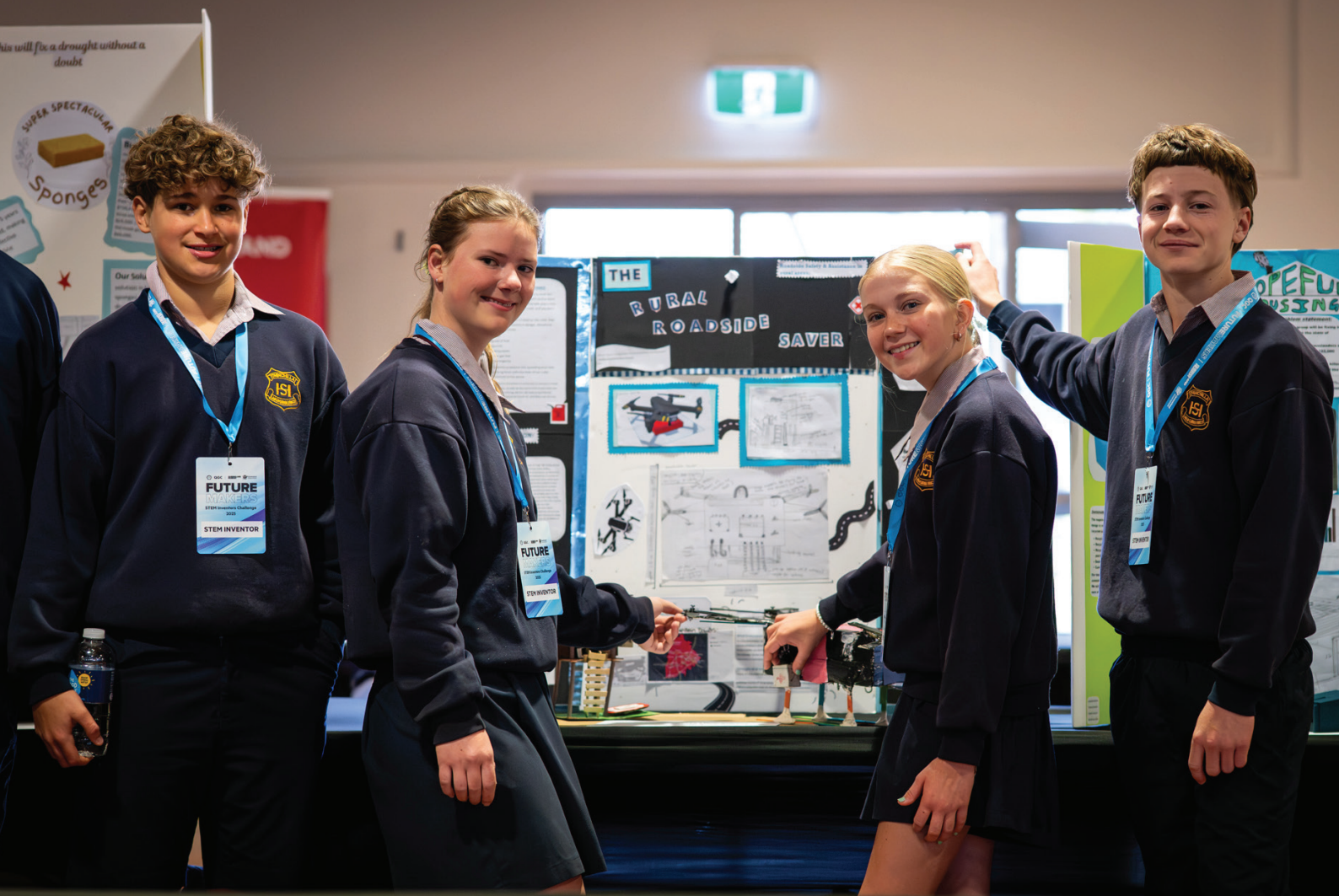
“We have done it for many years and our students love it. They love how stepped-out it is and connecting with industry experts.”

— TOOLOOA STATE HIGH SCHOOL



SCHEDULE: GLADSTONE REGION

2026 DATES	TASKS
Term 2, Week 10 Mon 22 Jun – Fri 26 Jun	<p>Please remember to contact your STEM Mentors to arrange consultations.</p> <p>Create your teams — Are your students hustlers, hipsters, hackers or humanists?</p> <p>Online launch webinar — Consider the steps to success for the STEM Inventors Challenge</p> <p>Investigate Spectacular Species Solutions (Steps 1, 2, 3, 4 & 5):</p> <ul style="list-style-type: none"> • Introduction to environmental management and the design process • Discover environmental management projects around the world and the problems they are solving.
June/July School Holidays Term 3, Week 1 Sat 27 Jun – Fri 17 Jul	<p>Students begin to think of some solutions (Steps 6, 7 & 8):</p> <ul style="list-style-type: none"> • Research and identify Queensland species that cause or are affected by environmental problems that environmental management could solve. • Explore existing solutions. • Students gather research on the problem they wish to solve and create a problem statement. • Brainstorm innovative solutions.
Term 3, Week 2-3 Mon 20 – Fri 31 Jul	<p>Share and refine ideas (Step 9)</p> <p>Consider design solutions (Step 10 & 11):</p> <ul style="list-style-type: none"> • Choose an environmental issue and species to focus on • Choose a solution to design as a team • Make a project plan <p>Consultation 1 with STEM Mentor (if applicable).</p>
Term 3, Week 4-5 Mon 3 Aug – Fri 14 Aug	<p>Create a prototype (Step 12 & 13):</p> <ul style="list-style-type: none"> • Design a prototype. • Sketch and label materials and features. • Collect materials/plan 3D design. • Make a prototype. <p>Consultation 2 with STEM Mentor (if applicable).</p>
Term 3, Week 6 Mon 17 – Fri 21 Aug	<p>Test and refine the prototype (Step 14 & 15):</p> <ul style="list-style-type: none"> • Make observations and test the design using simulated conditions. • Improve the design based on testing results. <p>Consultation 3 with STEM Mentor (if applicable).</p>
Term 3, Week 7-8 Mon 24 Aug – Thurs 3 Sept	<p>Write and organise displays for the STEM Inventors Show case at CQU (Step 16 & 17):</p> <ul style="list-style-type: none"> • Create an exhibition poster on supplied tri-fold board • Decide on exhibit set-up and any additional components to add. • Complete a risk assessment <p>Final teacher check-in to ensure students are ready to display their work</p>
Term 3, Week 9 Fri 11 Sept STEM Inventors Showcase At CQU	<p>Submit entry (Step 18)</p> <ul style="list-style-type: none"> • Set up prototype and display board for judging • Winners, Highly Commended, Commended and People's Choice Awards announced with prizes presented.



AUSTRALIAN CURRICULUM LINKS (VERSION 9)

Year 5 – Biological Sciences

Strand	Sub-strand	Content descriptor	AC code	Lesson/s
Science Understanding	Biological Science	Examine how particular structural features and behaviours of living things enable their survival in specific habitats	AC9S5U01	4, 5
Science as a Human Endeavour	Use and Influence of Science	Investigate how scientific knowledge is used by individuals and communities to identify problems, consider responses and make decisions	AC9S5H02	1, 2

Year 6 – Biological Sciences

Strand	Sub-strand	Content descriptor	AC code	Lesson/s
Science Understanding	Biological Science	Investigate the physical conditions of a habitat and analyse how the growth and survival of living things is affected by changing physical conditions	AC9S6U01	4, 5
Science as a Human Endeavour	Use and Influence of Science	Investigate how scientific knowledge is used by individuals and communities to identify problems, consider responses and make decisions	AC9S6H02	1, 2

Year 7 – Biological Sciences

Strand	Sub-strand	Content descriptor	AC code	Lesson/s
Science Understanding	Biological Science	Use models, including food webs, to represent matter and energy flow in ecosystems and predict the impact of changing abiotic and biotic factors on populations	AC9S7U02	3, 4, 5
Science as a Human Endeavour	Nature and Development of Science	Explain how new evidence or different perspectives can lead to changes in scientific knowledge	AC9S7H01	1
	Use and Influence of Science	Examine how proposed scientific responses to contemporary issues may impact on society and explore ethical, environmental, social and economic considerations	AC9S7H03	1, 2

Year 7 & 8 – Design and Technologies

Strand	Sub-strand	Content descriptor	AC code	Lesson/s
Knowledge and Understanding	Technologies and Society	Analyse how people in design and technologies occupations consider ethical and sustainability factors to design and produce products, services and environments	AC9TDE8K01	1, 2
		Analyse the impact of innovation and the development of technologies on designed solutions for global preferred futures	AC9TDE8K02	1, 2
Processes and Production Skills	Investigating and Refining	Analyse needs or opportunities for designing, and investigate and select materials, components, tools, equipment and processes to create designed solutions	AC9TDE8P01	8
	Generating and Designing	Generate, test, iterate and communicate design ideas, processes and solutions using technical terms and graphical representation techniques, including using digital tools	AC9TDE8P02	8, 9
	Producing and Implementing	Select, justify and use suitable materials, components, tools, equipment, skills and processes to safely make designed solutions	AC9TDE8P03	8
	Evaluating	Develop design criteria collaboratively including sustainability to evaluate design ideas, processes and solutions	AC9TDE8P04	9
	Collaborating and Managing	Develop project plans to individually and collaboratively manage time, cost and production of designed solutions	AC9TDE8P05	8, 9

Year 8 – Science

Strand	Sub-strand	Content descriptor	AC code	Lesson/s
Science as a Human Endeavour	Nature and Development of Science	Explain how new evidence or different perspectives can lead to changes in scientific knowledge	AC9S8H01	1
	Use and Influence of Science	Examine how proposed scientific responses to contemporary issues may impact on society and explore ethical, environmental, social and economic considerations	AC9S8H03	1, 2, 7
		Explore the role of science communication in informing individual viewpoints and community policies and regulations	AC9S8H04	2

Year 9 – Science

Strand	Sub-strand	Content descriptor	AC code	Lesson/s
Science as a Human Endeavour	Nature and Development of Science	Investigate how advances in technologies enable advances in science, and how science has contributed to developments in technologies and engineering	AC9S9H02	1, 2
	Use and Influence of Science	Examine how the values and needs of society influence the focus of scientific research	AC9S9H04	1, 2, 7

Year 10 – Science

Strand	Sub-strand	Content descriptor	AC code	Lesson/s
Science as a Human Endeavour	Nature and Development of Science	Investigate how advances in technologies enable advances in science, and how science has contributed to developments in technologies and engineering	AC9S10H02	1, 2
	Use and Influence of Science	Examine how the values and needs of society influence the focus of scientific research	AC9S10H04	1, 2, 7

General Capabilities: Critical and Creative Thinkings, Ethical Understanding, Literacy

Cross-Curriculum Priorities: Sustainability



REGISTER YOUR STUDENTS FOR THE CHALLENGE!

museum.qld.gov.au/futuremakers



For more information, contact

futuremakers@qm.qld.gov.au

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