

FUTURE MAKERS

STEM Inventors Challenge

WESTERN DOWNS | GLADSTONE REGION



2025

A free 10-week program
for Years 5 –10



QGC

FUTUREMAKERS

**QUEENSLAND
MUSEUM**



Queensland
Government

Presented by Future Makers
a partnership between Queensland Museum and Shell's QGC business

THE 2025 CHALLENGE:

Identify a significant challenge people face in your community and beyond and think BIG to design an EPIC engineered solution!

WESTERN DOWNS

Launch Webinar

Monday 31 March –
Friday 4 April
(Term 1, Week 10)

Judging and Award Presentation

World Science Festival
Queensland
Chinchilla State School
Friday 6 June
(Term 2, Week 7)

GLADSTONE REGION

Launch Webinar

Monday 23 June –
Friday 27 June
(Term 2 Week 10)

Judging and Award Presentation

World Science Festival
Queensland
Gladstone Entertainment
Convention Centre
Friday 29 August
(Term 3, Week 7)

This year's STEM Inventor's Challenge is inspired by World Science Festival Queensland's groundbreaking media show, *Epic Engineering*. *Epic Engineering* uncovers the technological challenges, creative problem-solving and collaborative efforts that drive extraordinary projects, revealing the bold ideas and teamwork behind achieving the seemingly impossible.

In this year's challenge, your students are invited to become Epic Engineers! **Working in groups of 2–4**, students in Years 5–10 will have **10 weeks** (including school holidays) to explore amazing engineering feats which have changed the local community and the world. Their task is to generate, define, design, refine and produce an *EPIC* Engineering **prototype and exhibit**, to submit to a panel of judges at **World Science Festival Queensland** in either Chinchilla or Gladstone.

WHAT'S INCLUDED?

- 10 Weeks of hands-on activities (including school holidays)
 - Curriculum-aligned to Years 5-10 Technologies, with links to Science and HASS
 - Highlighting Queensland Museum stories, research and collections
- Student activity booklet for each participating student
- A tri-fold tabletop display board will be supplied to each student team
- Teaching manual with curriculum links and criteria sheet
- Mentorship opportunities with Queensland engineers, designers and scientists
- Exclusive showcase space for each student team at World Science Festival Queensland. Winners will be announced on stage
- All participating teachers will be invited to the World Science Festival Queensland V.I.P event

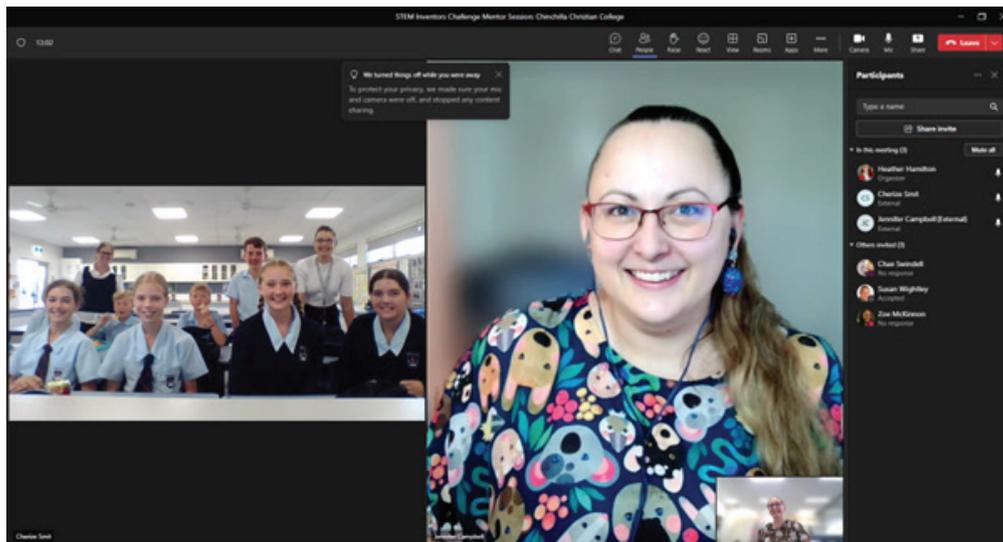
PRIZES:

- The winning school will receive a prize (TBA), as well as Future Makers teaching resources and Queensland Museum publications
- Winning students will each receive a trophy, certificate and large STEM prize packs as well as an invitation to the World Science Festival Queensland V.I.P event
- Highly Commended and Commended students will each receive certificates and small STEM prize packs
- All participating students will receive a certificate



STEM MENTORS

At your request, the Future Makers team can provide you with an available STEM Mentor, who can share helpful ideas, feedback and support through your students' design journey. The STEM Mentors are working professional experts in science, engineering or design.



GLADSTONE REGION WINNERS 2024

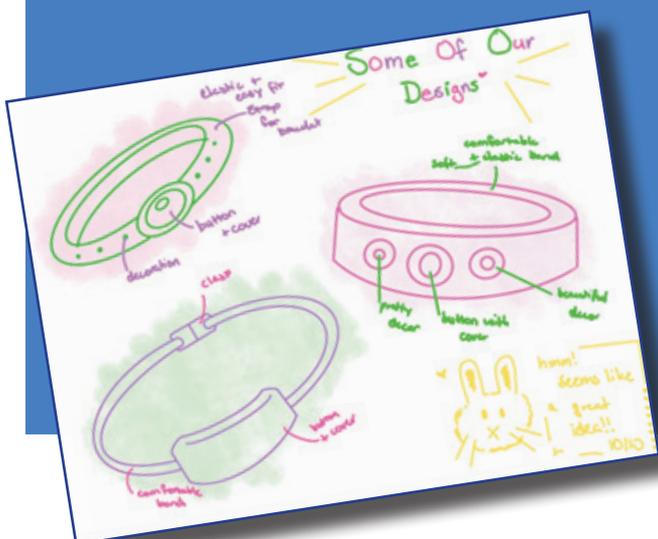
“The DV Bracelet”

Aspiring inventors Emily Masters (Year 10) and Hui Yan Hannant (Year 8) from Toolooa State High School wowed judges with their design concept called *DV Bracelet* — a discreet wearable device which would safeguard victims of domestic violence.



The life-saving feature of the prospective product is a button that instantaneously alerts authorities and texts a trusted contact with a GPS location, while recording audio evidence.

To avoid detection and preserve dignity, Masters and Hannant stipulated the unisex bracelet would be available in a wide range of designs and colours, and distributed freely via vending machines in hospitals and women's health centres.



WESTERN DOWNS WINNERS 2024

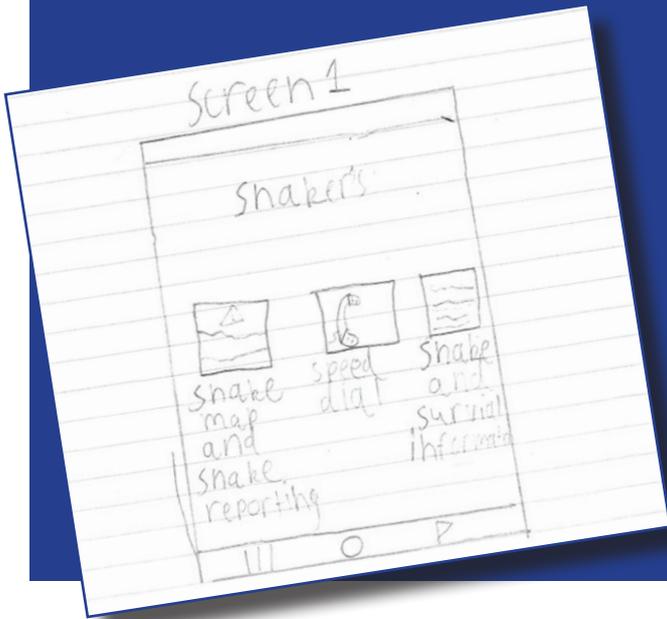
“Snaker’s Rescue”

Year 6 Miles State School students Dallas Brown, Elio Wise and Alfie O’Donnell won in 2024 with their design concept called *Snaker’s Rescue* — a one-stop smartphone app for snakebite prevention and emergencies.



Designed for regional families and bushwalkers, the app would enable the user to identify snake species using photographic Artificial Intelligence (AI), before sharing sightings to other users via an interactive map.

In addition to sketching numerous app pages, the boys programmed a talking PicoH educational robot to demonstrate a voice-activated AI assistant feature, able to contact emergency services and provide first aid instructions. The students also outlined an estimated development budget, highlighting the app’s snake catcher speed-dial portal as a potential advertising revenue stream.

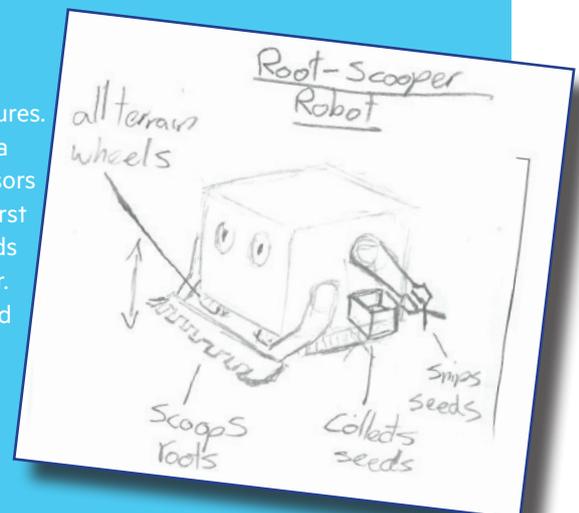


GLADSTONE REGION WINNERS 2023

“Little Rooty”

The winning 2023 entry for the Gladstone Region was a robot called *Little Rooty*, by Calliope State High School students Emily and Annabelle. This solar-powered robot would identify and destroy Giant rats tail grass — a weed that kills native plants and threatens local biodiversity.

The girls designed a basic prototype out of Meccano to demonstrate a number of features. Aided by a lifting mechanism, a rake-like arm and a sharp scissors attachment, the robot would first cut and contain the sticky seeds in an internal box-like chamber. It would then scoop up and contain the entire plant. All collected plant matter would be destroyed in the chamber using microwaves and then compacted to save space.



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

“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

*“I think these sorts of programs expose students to technologies and ways of thinking they weren’t even aware of to begin with.
It broadens their horizons.”*

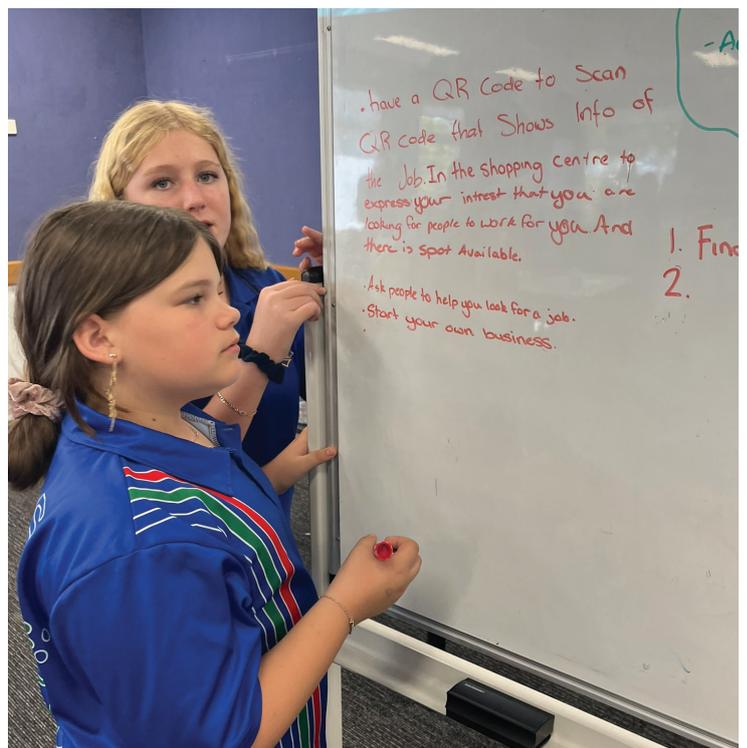
— ROSEDALE STATE SCHOOL

“The kids are just beyond proud. Thank you for facilitating this experience for the children out here.”

— MILES STATE SCHOOL

“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



SCHEDULE

WESTERN DOWNS	GLADSTONE	TASKS
Term 1, Week 10 Mon 31 Mar – Fri 4 Apr	Term 2, Week 10 Mon 23 – Fri 27 Jun	Online Launch Webinar Teachers are invited to register their class to participate in an online launch webinar where they will create a team, and: Consider the challenge: <ol style="list-style-type: none"> 1. Discover epic engineering feats in Queensland and the world and what problems they solved 2. Set the first tasks before the holidays: <ol style="list-style-type: none"> a. Research and identify current local and global problems b. Choose a problem to tackle 3. Consider the following steps in the challenge: <ol style="list-style-type: none"> a. Think of some solutions b. Share and refine ideas c. Make a prototype d. Test it out and improve your design e. Make a prototype exhibit to display at World Science Festival Queensland
April School Holidays Sat 5 – Sun 20 Apr	June/July School Holidays Sat 28 Jun – Sun 13 Jul	Optional school holiday activities Students may use the school holidays to: Identify the problem: <ol style="list-style-type: none"> 4. Research and identify local, regional or Queensland problems that epic engineering could solve 5. Gather research on the problem you wish to solve 6. Brainstorm big solutions
Term 2, Week 1–2 Tue 22 Apr – Fri 2 May	Term 3, Week 1–2 Mon 14 – Fri 25 Jul	Brainstorm solutions: <ol style="list-style-type: none"> 7. Continue/commence tasks from school holidays 8. Choose a solution to design as a team 9. Make a project plan Consult with STEM mentor (if applicable)
Term 2, Week 3–4 Tue 6 – Fri 16 May	Term 3, Week 3–4 Mon 28 Jul – Fri 8 Aug	Make a prototype: <ol style="list-style-type: none"> 10. Design a prototype. 11. Label materials and features 12. Collect materials/plan 3D design 13. Make a prototype Consult with STEM Mentor (if applicable)
Term 2, Week 5 Mon 19 – Fri 23 May	Term 3, Week 5 Mon 11 – Fri 15 Aug	Refine your prototype: <ol style="list-style-type: none"> 14. Make observations and improve your design Consult with STEM Mentor (if applicable)
Term 2, Week 6–7 Mon 26 May – Thu 5 Jun	Term 3, Week 6–7 Mon 18 – Thu 28 Aug	Make a prototype exhibit: <ol style="list-style-type: none"> 15. Design and create a prototype exhibit to display at World Science Festival Queensland
Term 2, Week 7 Fri 6 Jun at WSFQ Chinchilla	Term 3, Week 7 Fri 29 Aug at WSFQ Gladstone	Submit entry at World Science Festival Queensland <ol style="list-style-type: none"> 16. Set up and display prototype exhibits at World Science Festival Queensland for judging 17. Winners, Highly Commended and Commended entries announced and awarded prizes, trophies, and certificates

CURRICULUM LINKS: DESIGN AND TECHNOLOGIES

Investigating and defining

Years 5–6: investigate needs or opportunities for designing, and the materials, components, tools, equipment, and processes needed to create designed solutions (AC9TDE6P01)

Years 7–8: Analyse needs or opportunities for designing, and investigate and select materials, components, tools, equipment, and processes to create designed solutions (AC9TDE8P01)

Years 9–10: Analyse needs or opportunities for designing; develop design briefs; and investigate, analyse, and select materials, systems, components, tools, and equipment to create designed solutions (AC9TDE10P01)

Generating and Designing

Years 5–6: Generate, iterate, and communicate design ideas, decisions and processes using technical terms and graphical representation techniques, including using digital tools (AC9TDE6P02)

Years 7–8: Generate, test, iterate and communicate design ideas, processes and solutions using technical terms and graphical representation techniques, including using digital tools (AC9TDE8P02)

Years 9–10 - Apply innovation and enterprise skills to generate, test, iterate and communicate design ideas, processes, and solutions, including using digital tools (AC9TDE10P02)

Producing and implementing

Years 5–6: Select and use suitable materials, components, tools, equipment, and techniques to safely make designed solutions (AC9TDE6P03)

Years 7–8: Select, justify, and use suitable materials, components, tools, equipment, skills and processes to safely make designed solutions (AC9TDE8P03)

Years 9–10: Select, justify, test, and use suitable technologies, skills, and processes, and apply safety procedures to safely make designed solutions (AC9TDE10P03)

Evaluating

Years 5–6: Negotiate design criteria including sustainability to evaluate design ideas, processes and solutions (AC9TDE6P04)

Years 7–8: Develop design criteria collaboratively including sustainability to evaluate design ideas, processes and solutions (AC9TDE8P04)

Years 9–10: Develop design criteria independently including sustainability to evaluate design ideas, processes and solutions (AC9TDE10P04)

Collaborating and Managing

Years 5–6: develop project plans that include consideration of resources to make designed solutions (AC9TDE6P05) individually and collaboratively.

Years 7–8: Develop project plans to manage time, cost and production of designed solutions (AC9TDE8P05) individually and collaboratively.

Years 9–10: Develop project plans for intended purposes and audiences to manage projects individually and collaboratively, taking into consideration time, cost, risk, processes, and production of designed solutions (AC9TDE10P05)



REGISTER YOUR STUDENTS FOR THE CHALLENGE!

museum.qld.gov.au/futuremakers



For more information, contact

Casey Davidson — Education Manager, Future Makers
casey.davidson@qm.qld.gov.au 07 3153 4408



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