FUTUREMAKERS

STEM INVENTORS CHALLENGE

WESTERN DOWNS

A 10-week Design & Technologies and Science program for Years 7 –10

QUEENSLAND MUSEUM

Queensland Government

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 **Years 7–10 students based in the Western Downs** 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.

Working in groups of 2–4, students in Years 7–10 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 event** at World Science Festival Queensland Student Day Chinchilla, on Friday 7 August.

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 showcase space for each student team at World Science Festival Queensland Student Day in Chinchilla, with allocated time to enjoy festival activities. Snacks provided. Award winners will be announced on the day.

PRIZES:

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

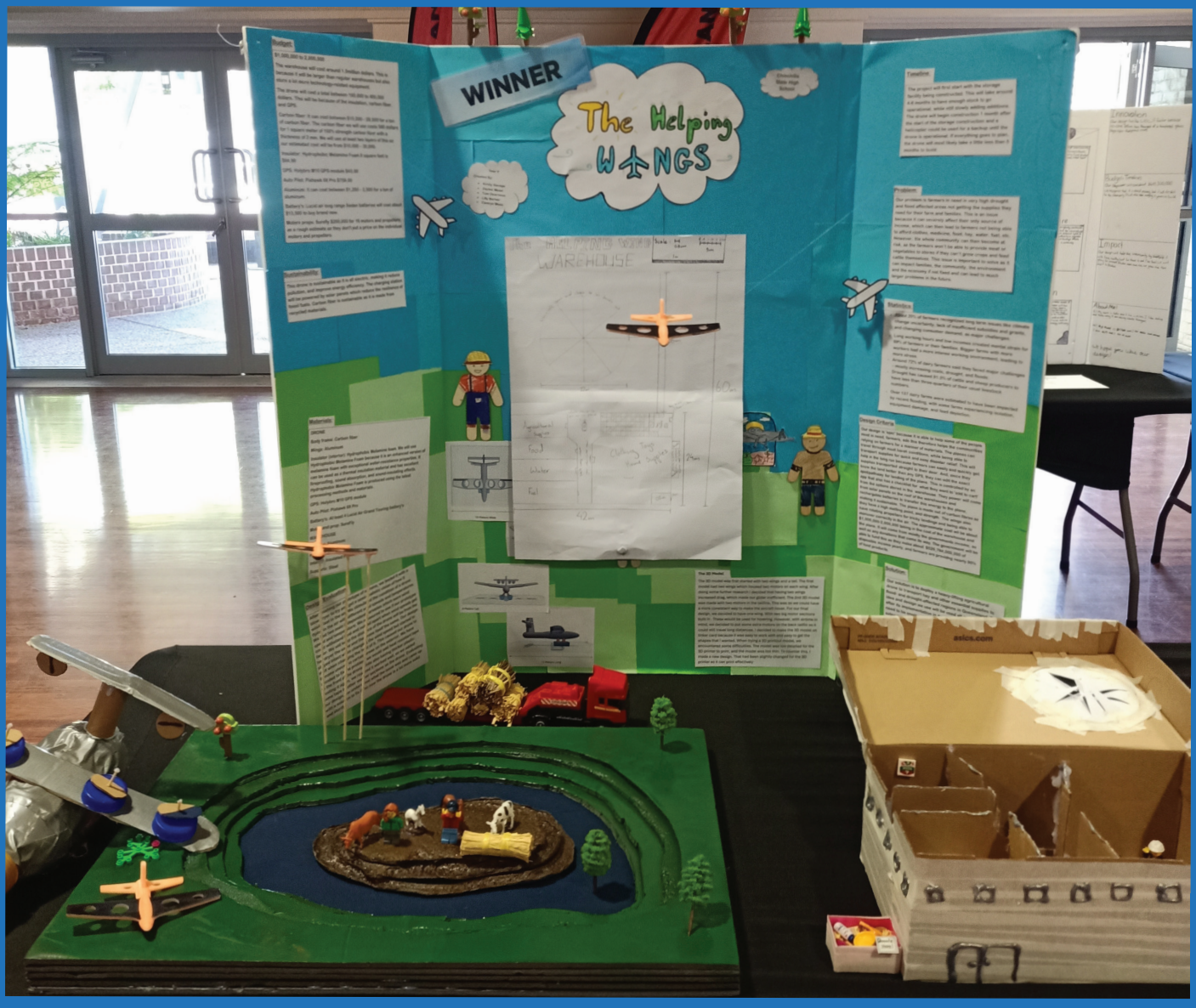
The Queensland Museum team can connect your students with a STEM Mentor who can provide helpful ideas, feedback and support. The STEM Mentors are working professionals in science, engineering or design.

STEM INVENTORS CHALLENGE WINNERS 2025
WESTERN DOWNS REGION

“The Helping Wings”

Year 9 students Tom, Zaylee, Camryn and Kirsty from Chinchilla State High School were awarded as the Western Downs regional winners of the 2025 Future Makers STEM Inventors Challenge.

The students impressed judges with their inventive prototype called *The Helping Wings* — a supply transportation drone for flood or drought affected farmers. Presented in a highly detailed tabletop display, the drone would be engineered for high weight capacity, extended flight endurance, weather resilience and precision delivery of hay and other essential supplies via a downloadable app. The students even considered the need for ample warehousing and a hub for drone landing and take-off.



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."

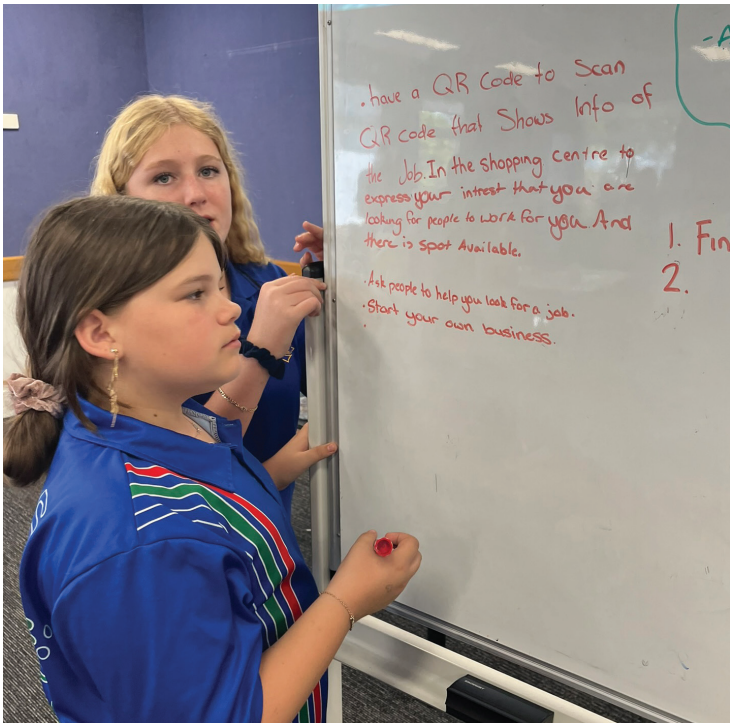
TEACHER TESTIMONIALS

"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: WESTERN DOWNS

2026 DATES	TASKS
Term 2, Week 5 Mon 18 May – Fri 22 May	**Please remember to contact your STEM Mentors to arrange consultations.** **Create your teams** — Are your students hustlers, hipsters, hackers or humanists? **Online launch webinar** — Consider the steps to success for the STEM Inventors Challenge **Investigate Spectacular Species Solutions (Steps 1, 2, 3, 4 & 5):** • Introduction to environmental management and the design process • Discover environmental management projects around the world and the problems they are solving.
Term 2 Week 6 Mon 25 May – Fri 29 May	**Students begin to think of some solutions (Steps 6, 7 & 8):** • 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 2, Week 7–8 Mon 1 Jun – Fri 12 Jun	**Share and refine ideas (Step 9)** **Consider design solutions (Step 10 & 11):** • Choose an environmental issue and species to focus on • Choose a solution to design as a team • Make a project plan **Consultation 1 with STEM Mentor (if applicable).**
Term 2, Week 9–10 June/July School Holidays Mon 15 Jun – Sun 12 Jul	**Create a prototype (Step 12 & 13):** • Design a prototype. • Sketch and label materials and features. • Collect materials/plan 3D design. • Make a prototype. **Consultation 2 with STEM Mentor (if applicable).**
Term 3, Week 1 Mon 13 Jul – Fri 17 Jul	**Test and refine the prototype (Step 14 & 15):** • Make observations and test the design using simulated conditions. • Improve the design based on testing results. **Consultation 3 with STEM Mentor (if applicable).**
Term 3, Week 2–3 Mon 20 Jul – Fri 31 Jul	**Write and organise the display for World Science Festival Queensland, Chinchilla** • Create an exhibition poster on supplied tri-fold board • Decide on exhibit set-up and any additional components to add. • Complete a risk assessment **Final teacher check-in to ensure students are ready to display their work**
Term 3, Week 4 Fri 7 Aug WSFQ Chinchilla	**Submit entry (Step 18)** • Set up prototype and display board for judging • Winners, Highly Commended, Commended and People's Choice Awards announced with prizes presented.


Self-Sustainable
Cargo Homes
DESIGN
CREATE
REFINE
Flood water
DAMAGE
Instructions For
Flood 0 Electronics
FUTURE
STEM INVENTOR


SUPER SPECTACULAR
Sponges
THE
RURAL
ROADSIDE
SAVER
FUTURE
STEM INVENTOR

AUSTRALIAN CURRICULUM LINKS (VERSION 9)

General Capabilities: Critical and Creative Thinkings, Ethical Understanding, Literacy
Cross-Curriculum Priorities: Sustainability

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 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

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

REGISTER YOUR STUDENTS FOR THE CHALLENGE!

museum.qld.gov.au/futuremakers

For more information, contact

futuremakers@qm.qld.gov.au

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