



ROYAL QUEENSLAND SHOW

PROJECT INFORMATION BOOKLET

FARM OF THE FUTURE: AGRITECH INNOVATION CHALLENGE



Years 8 - 10

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COMPETITION OVERVIEW

Farm of the Future

The Royal Queensland Show (Ekka) and STEMPunks Education are proud to present the 'Farm of the Future - AgTech Innovation Challenge', a state-wide STEM education and innovation program that empowers Queensland students to design real-world agricultural solutions.

This initiative brings together schools, industry, and the agricultural sector to address real challenges facing farmers and producers such as crop health, water efficiency, pest/disease detection, sustainability, and farm automation.

The Farm of the Future program is an 8-week innovation challenge delivered across Queensland schools, culminating in a live Innovation Sports Showcase at the Ekka.



IMPORTANT CONTACTS

Ekka Education Enquiries

education@ekka.com.au

STEMPunks Enquiries

hello@stempunks.com.au

OUR PARTNER

STEMPunks® E D U C A T I O N

STEM Punks, founded in 2017, is a team of award-winning educators, scientists, and engineers who develop and deliver award-winning STEM Education programs worldwide.

Their programs foster educational partnerships between industry and schools, empowering communities through innovation-driven learning. By equipping students with industry-aligned skills, they create meaningful pathways to employment, support long-term social mobility, and drive sustainable economic growth - aligning with Social Impact, Community Investment, Employee Engagement, and Future Workforce initiatives.

Industry partners they work with:



Schools' Feedback



"I wanted to take a moment to express my sincere thanks for the fantastic experience STEM Punks provided our students today. The activities were incredibly well organised and engaging, and the students were thoroughly inspired by the challenges they faced. Your passion for STEM education clearly resonated with the students, and I believe today's experience has sparked new interests in potential career pathways for many of them."

Justin (Joe) Millen - Head of Department Technologies Mackay Northern Beaches SHS



"The event's organisation was seamless, and we appreciate the clear communication and support provided leading up to and during the showcase. Our students particularly enjoyed the collaborative environment and the opportunity to work with diverse technologies, further igniting their passion for STEM."

Jenny Schuss - Maths and Technologies Curriculum Leader St John's School Roma



"The program was very valuable for our students as it linked the Curriculum with real-world industry skills. The alignment with Autonomous Technologies & Systems was great as it taught the students valuable STEM skills applied in problem-based learning scenarios. The program also provided great insights into future career opportunities."

Justin Andries - STEM Teacher Matthew Flinders Anglican College



"The STEM Punks team were exceptional in their delivery of the course, and ensured total engagement of the students. They demonstrated the real-world application of design, experimenting and coding, which captured the imagination of the students and allowed them to practice these skills through problem solving scenarios."

Tobie White - Head STEM Teacher Armidale Secondary College

PROGRAM OVERVIEW

The Challenge

Students will explore the future of agriculture through an industry focused lens. Using the Innovation Kit, Learning Guide, and aligned digital design tools, they will:

- Engineer a smart farming solution to address a real agricultural challenge
- Design and build a physical prototype that demonstrates how their idea works
- Show how their solution supports productivity, sustainability, or resilience for farmers
- Create a digital version (digital twin) of their prototype to demonstrate scalability and innovation

Student Journey

- Assemble in teams to ideate, design, and refine a solution to the real-world agricultural problem
- Build a functioning prototype using sustainable, accessible materials and the provided innovation tools
- Develop a compelling pitch that tells the story of the problem, the solution, and the impact
- Present live at the Royal Queensland Show (Ekka) as part of the Innovation Sports Showcase, where each team unveils their digital twin and physical prototype to industry judges and the public

Outcomes

- A functional prototype addressing an authentic agricultural challenge
- Innovation and teamwork, using design, iteration, and digital tools
- Real-world pitch and 3D design experience in front of industry, media, and the public at the Ekka



PROGRAM PHASES

The project is delivered over four phases across an **8-week program (Across Term 2 and 3, 2026)**



Phase 1: Foundations of Future Farming

- Program launch and team setup / onboarding
- Live Webinar #1 – Challenge introduction
- Introduction to future farming and AgTech
- Industry-aligned challenge revealed
- Design thinking basics and project expectations



Phase 2: Capability Building

- Teacher and student capability uplift using:
 - Innovation Kits
 - Innovation Learning Guides
- Live Webinar #2 – Technical capability building (tools, coding, engineering basics)
- Skills development: programming, sensors, mechanical design, testing methods



Phase 3: Prototype Design and Build

- Teams design and build a working AgTech prototype
- Iteration, testing, and troubleshooting
- Guided by the learning guide and webinar support
- Live Webinar #3 – Project check-in + help desk



Phase 4: Pitch & Showcase at Ekka

- Final prototype improvements
- Pitch preparation and visual storytelling
- Judging criteria unpacked and applied
- Live Innovation Sports Showcase at the Ekka
- Teams present their solution to industry judges and the public
- Optional digital twin visualisation only activated at the event

INNOVATION SPORTS - EKKA SHOWCASE

What is the Innovation Sports Showcase?

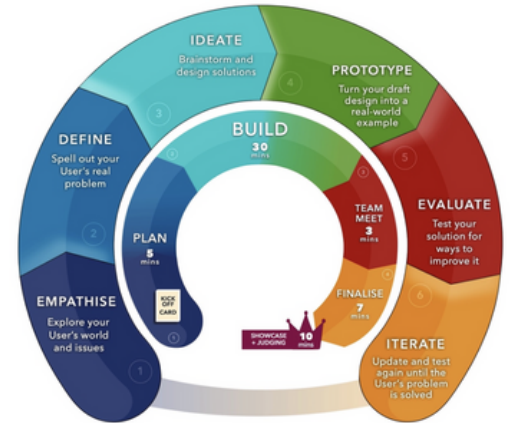
- A live, high-energy student 3D design and pitch event
- Teams present their Minecraft digital twin of their prototype to industry judges and a public audience
- Built to celebrate creativity, real-world problem solving, and student voice
- Showcases both the physical prototype and the thinking behind it

How it Works

- Students explain their challenge, solution, and real-world impact
- Judges score on innovation, feasibility, and presentation
- Winner crowned Innovation Sports Champion

Why It Matters

- Turns STEM into a spectator event
- Builds student confidence and industry-ready skills
- Creates a visible celebration of regional talent and future workforce capability



INNOVATION STEM KITS & LEARNING GUIDES

Our STEM Innovation Kits and Innovation Learning Guides offer a powerful and engaging way to support STEM learning in schools by providing hands-on, inquiry-based experiences.

- **Hands-on Learning:** Kits move beyond theoretical concepts, allowing students to actively build, experiment, and test their ideas. This tactile approach fosters deeper understanding and retention of STEM principles.
- **Real-World Connections:** Our kits focus on real-world applications of STEM concepts, connecting classroom learning to practical situations and career possibilities. This makes learning more relevant and engaging for students, sparking their interest in STEM fields.
- **Accessibility and Engagement:** Kits can make STEM learning more accessible and engaging for all students, regardless of their background or learning style.



EXTENSION BOARD INNOVATION KIT

Innovation Learning Guides both in Print and Digital Format (Digital incl. Video Tutorials)



Extension Board



micro:bit x 2



Servo (9V)



Servo (Cont.)



Water Pump



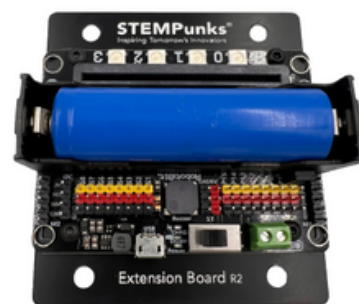
Vinyl Hose



Water Sensor



Extension x 3



Learning Guide (Printed & Digital)



Video Tutorials (Digital Version)



DISCOVER QUEENSLAND'S BIGGEST CLASSROOM

*Join schools from across the state bringing
learning to life through the Ekka experience.*



Scan here to get involved!





INTERNATIONAL AWARD WINNERS

The Royal Queensland Show (Ekka) is recognised for its excellence, over many years, by winning numerous awards at the International Fairs & Expos (IAFE) Awards.

IAFE has more than 1,000 members representing agricultural fairs from the United States, Canada, the United Kingdom, and Australia.

These awards represent the continued dedication the Ekka plays in bridging the country city divide, and educating the next generation on the essential role farming and agriculture plays in their everyday lives.