QUEENSLAND

Thursday, 25 June 2026

Imagine, Invent, and Inspire - *we are the change*

The conference theme highlights how STEAM learning develops the thinkers, problem solvers and change creators that imagine, invent, and shape the world.

The It Takes a Spark! STEM Conference is UNIQUE as teachers and students learn together. The day is an inspiring and engaging programme designed for Year 4 to 10 students, and Teachers and Education Leaders.

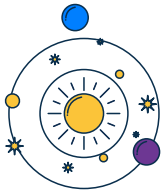
The brightest educators, students and key organisations who are passionate about STEM will share their ideas, programs, and innovations that demonstrate STEM learning in action and develop people to be thinkers and problem solvers.

Flow of the day

The day begins with an outstanding keynote speaker to engage and inspire **educators and students,** followed by the thought provoking STEM Expo hands-on activity area. You will then move into preselected Digi-Design Mini Workshops, and Problem Solvers Design Challenges. **Teachers** also having the option to attend Teacher only Mini-Master Classes.

Why attend...

- Hear from industry, university and experts in the STEM field
- Engage in innovative, **hands-on STEM** learning alongside your students
- Discover the latest developments, innovations, tips and tools in STEM from experts and practitioners.
- See live demonstrations and receive resources, tools and tips to implement back in the classroom
- Network and collaborate with other schools, educators and industry experts and gain **insight into their STEM activities and programs**
- Earn professional development hours



Who the conference is for...

Year 4 to 10 students: those who are already (or aspire to be) STEM Leaders in your school OR those you wish to spark an interest in STEM
Teachers: those who have little experience and those who have a lot, looking to be inspired, participate in hands-on professional learning and network with peers
Heads of Learning Areas / Curriculum: who wish to elevate the teaching of future ready skills and disciplines
Principals and Deputy Principals: to witness what is possible by embedding STEM authentically in your school

Outstanding Keynote Speaker

DR NAOMI PAXTON

MedTech innovator
Research & Operations Lead, Propel Health AI

Dr Naomi Paxton is a MedTech innovator. She is currently the Research & Operations Lead at Propel Health AI, a Brisbane-based startup and Australia's first end-to-end healthcare data and AI platform, where she supports the development of AI-powered tools for clinical decision-making, real-world evidence generation, and healthcare system transformation.

Previously, Dr Naomi Paxton was a Senior Research Fellow at QUT and led the Bioinspired Additive Manufacturing (BioAM) group. With a background in physics, Naomi completed the dual international Biofabrication Masters degree and has completed her research training in world-leading international labs in Australia, Germany, the UK and USA.

Dr Paxton is also a multi-award-winning science communicator, dual TEDx speaker, and passionate advocate for diversity in STEM. For Naomi's commitment to STEM outreach & engagement, and in particularly supporting Women in STEM, Naomi was awarded QUT's overall Student Leader of the Year.

Naomi was also the inaugural winner of the ATSE Ezio Rizzardo award, recipient of the QLD Women in Technology's Life Sciences Young Achiever Award, CSIRO Alumni Scholarship in Physics.

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GRACE LUTHERAN COLLEGE EST.1978
Rothwell Campus, Mewes Rd & Anzac Ave, Rothwell QLD 4022

Organiser
Intuyu Consulting
intuyuconsulting.com.au




When we asked teachers how the 2025 event made a difference to your thinking or practice? This is what they told us...

- *It was a great experience and will take a lot back*
- *The concepts and activities ignite creativity and problem-solving skills for all learning levels*
- *More confidence and curiosity to embed STEM at school*
- *Science made fun. Very enthusiastic and entertaining presenters*
- *So many different ideas, strategies and planning practices*
- *Expanding my coding knowledge*
- *Got some great lesson plans*
- *Be more open to Science resources including AI. More awareness of what is available. We bought the game from Epic Card Games*
- *Coding is less scary now. Considering the use of Arduino possibly in senior science data collection*
- *Application of design thinking*
- *The presentations were cool, overwhelming, great stuff*
- *Inspired to purchase materials for innovative experiments for students*
- *It introduced and reminded me of processes and practices which I haven't implemented in classrooms*
- *Morning session about Gen AI for teachers was great*
- *Think about how I can use technology / STEM in my lessons*
- *More hands-on activities*
- *Actionable AI intelligence knowledge From Day of AI and Water Filtration workshop*
- *Provided insight into various organisations our school can tap into to support students and staff to develop STEM capabilities*
- *It gave me some experiment ideas*
- *It was interesting to gain new insights on AI*
- *Fresh ideas on how to deliver content, updated knowledge on AI and cybersecurity*
- *Hands-on activities to spark curiosity*
- *Loved the hands-on workshops*

When we asked the students 'What has changed in your thinking about STEM now that you have attended this conference?' They told us...

- *I want to have a job in building games*
- *I used to think it was boring but it is not*
- *STEM gets more interesting and there is more to learn*
- *A lot because I can come up with ideas to help Pop and Grandma*
- *There is a lot more to STEM than just Science and Technology*
- *That STEAM is not just "robots" but its world changing*
- *Before today I had no idea about STEM and now it is fun*
- *That you can do anything with STEM / STEAM*
- *It taught me lots of things to do with science and robots*
- *I think it is very fun to do different things I haven't done before*
- *The range they cover*
- *That even if you don't have tap water you can still make it clean*
- *To help the earth to stop cyclones*
- *The variety of subjects and jobs that apply and are in STEM*
- *It's really fun and cool building and creating things*
- *You can make a difference*
- *Education can be learnt interactively and socially*
- *I feel like I am more educated on how STEM works*
- *It needs critical thinking*
- *It has elicited an interest in learning new things*
- *That maths is the best part*
- *I think STEM is awesome*
- *I didn't know that there were so many different options*
- *Making goals always gets you somewhere. This way of thinking really helps when working to achieve something*
- *We use engineering in everyday life*
- *The under appreciation of STEM*
- *STEAM has changed my life immensely*
- *Extremely interested in cardboard games*
- *I have learnt a lot about human connection*

Flow of the day....

*Listed program is subject to change

9.15am	Sign-in opens
9.45am	Master of Ceremonies - Welcome, set up for the day and housekeeping
9.55am	**KEYNOTE SPEAKER - DR NAOMI PAXTON**
10.25am	**ROTATION ONE - 60 minute session** **STEM Expo - all attendees** ◦ Hands-on STEM activities for Year 4 to 10 students and teachers ◦ Opportunity to engage in multiple STEM experiences ◦ Presented by STEM students / educators / universities / sponsors / organisations ◦ 10-15 min activity, moving between activities during the 60 minute session
11.25am	**LUNCH** - A light lunch included for students, teachers and presenters. An opportunity to network with other teachers and students.
11.50am	**ROTATION TWO - 40 minute session** **DigiDesign Mini-Workshops** ◦ Preselected parallel mini-workshop sessions on a specific STEM topic ◦ For Students and/or Teachers ◦ Hands-on STEM learning for Year 4 to 10 students ◦ Presented by STEM students / educators / universities / sponsors / organisations
11.50am	**Teacher only Mini-Master Classes** ◦ Preselected parallel sessions ◦ Hands-on masterclass on a STEM topic that will make a difference for teachers to enact in their school ◦ Presented by STEM educators / universities / sponsors / organisations
12.35pm	**BREAK -** A quick break before moving to the next preselected workshops
12.50pm	**ROTATION THREE - 70 minute session** **Problem Solver Design Challenge** ◦ Preselected parallel sessions ◦ Aimed at Year 4 to 10 students and/or teachers ◦ This session involves real life design challenges where attendees are led through the design process to ideate and present possible solutions ◦ Presented by STEM students / educators / universities / sponsors / organisations
12.50pm	**TEACHER only Mini-Master Classes - 70 minute session** ◦ Preselected parallel sessions ◦ Hands-on masterclass on a STEM topic that will make a difference for teachers to enact in their school ◦ Presented by STEM educators / universities / sponsors / organisations
2.00pm	**WHERE TO NEXT, FEEDBACK AND CLOSE OF QLD CONFERENCE** ◦ Completion of feedback form ◦ Prize draw for Teacher STEM Passport
2.15pm	**END OF THE CONFERENCE**

The Programme so far....

Teacher Mini-Master Class: Practical Professional Development

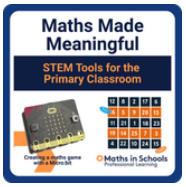
Sustainability Innovation Challenge

STEM Punks
The Sustainability Innovation Challenge invites participants to tackle real-world problems using the UN Sustainable Development Goals and Design Thinking as a lens for purposeful, future-focused innovation.
In this dynamic, hands-on experience, learners build practical skills in micro:bit programming and explore how SMART Sensor Boards can measure and monitor environmental conditions to guide meaningful solutions. Each participant also receives an Innovation Learning Guide tailored to the micro:bit, empowering them to continue experimenting, creating, and driving sustainable impact long after the conference ends.
Suitable for Primary and Secondary Teachers

Bringing STEM to life through video games

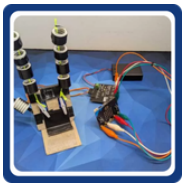
Future You Australia, UNSW
Discover how gamified learning can transform your classroom!
In this hands-on workshop, explore one of Future You and Arludo's new gamified STEM classroom modules (which are all free). You will run your own space tourism company, hiring staff, solving science problems and discovering how physics and STEM skills help engineers keep rockets and space tourists safe. Through guided gameplay, you will explore concepts such as heat transfer and temperature, and forces.
Teachers will experience gameplay from a student's perspective, and learn how to integrate it into lessons to build curiosity, confidence, and curriculum-aligned outcomes.
Suitable for Primary Teachers

Maths Made Meaningful



CSER STEM, University of Adelaide
Unlock the power of digital technologies to make maths engaging and purposeful.
In this hands-on workshop, you'll explore how Micro:bits can bring the core maths concepts of data, computational thinking and algorithms to life through STEM. Discover free professional learning opportunities from the Maths in Schools and CSER STEM Professional learning resources covering Maths, AI, cybersecurity, and digital technologies.
Suitable for Primary Teachers *BYO internet enabled laptop

Bionic Hand



Damien Kee, Digitech Tinker Lab
One of the challenges that many STEAM teachers face is creating authentic real-world projects that address both the digital as well as the design and technologies curriculum. We know that authentic challenges can engage students and deepen critical and creative thinking as well as problem solving. In this exciting hands-on workshop, you will learn how to build a simple bionic hand using micro:bits. Discussions will range from appropriate materials to use, construction techniques, wiring and programming. This activity authentically integrates both Design and Technology and Digital Technology in a single, easy to implement classroom project. A handout will be provided so you can try this back in your school.
Suitable for Primary and Secondary Teachers

Art-based STEAM using 3D printing & Microbits

Corinda State High School
Art-based STEAM combines technical engineering skills with creative expression, allowing students to design, prototype, and animate their artistic visions. These projects range from creating interactive sculptures and wearable art to functional, automated robotic systems.
In this hands-on workshop teachers will learn how 3D printing and microelectronics can be embedded into Art projects. A handout will be provided on how you can replicate this back in your school.
Suitable for Primary and Secondary Teachers *BYO internet enabled laptop

The pedagogy of innovation and entrepreneurial thinking

Australian Skills Development Institute
Innovation and entrepreneurial thinking are closely intertwined, driving business success and societal progress. Entrepreneurial thinking involves identifying opportunities, solving problems creatively, and taking calculated risks—core traits that fuel innovation.
In this hands-on workshop you will experience how to pedagogically create a learning environment that nurtures entrepreneurship and innovation. You will be involved in critically questioning a problem and using creative thinking skills to develop a solution. This process can be applied across subjects, teaching students how to think critically and creatively.
Suitable for Secondary Teachers *BYO internet enabled laptop or mobile

STEM Expo: hands-on activities - Teacher and Student

Manufacturing Matters

Manufacturing Skills Queensland
The manufacturing sector contributes $20 billion to the Queensland economy and employs 180,000 people. Did you know that there are nearly 200 career opportunities in manufacturing, including pathways via vocational education (VET), higher education, and direct entry?
In this expo you can explore 'Career Snacks' which are 2-minute interactive industry simulations including Truck Manufacturing at Volvo Group Australia and Steel Fabrication at Bridgeman. Find out more about careers in the manufacturing industry!

How Engineers Drill Through Rock

Engineers Australia
Engineers drill through rock to reach and understand what lies beneath Earth's surface, whether they're extracting resources like oil, gas, and minerals, studying geological structures through core samples, or creating foundations, tunnels, and other major infrastructure.
In this hands-on expo activity, you will explore real rock samples and engineering tools used in drilling. You will compare rock hardness using the Mohs scale and examine real PDC cutters and drill bit replicas. The activity shows how engineers design tools to drill through very hard rock and access energy and natural resources.

Mars AI Rover and AI SMART Home Demonstrations

STEM Punks
At the STEM Punks Expo stand, you'll discover how micro:bit-based Mars Rovers and SMART Homes can be integrated with AI to perform real-world tasks.
Students and teachers are invited to get hands-on with interactive kits and tackle challenge-based activities using our AI Machine Learning Tool and IoT Dashboard. Come explore the exciting possibilities of coding, robotics, and AI—all in one fun, educational experience!

Draw who you see in STEM

Future You Australia, UNSW
Did you know that women were the first computer programmers? From Ada Lovelace to the women who helped NASA land a lander on the moon. In fact, our view of who could be a programmer only changed due to a marketing campaign by IBM in the late 1970's when they promoted personal computers as a "boys" thing.
This Future You Expo activity will spark important conversations about how stereotypes can influence your attitudes towards STEM. Join us and draw the true diversity of people involved in a breadth of STEM careers and take away information about STEM jobs that you didn't even know existed!

Stars, Planets & Black Holes: A VR Exploration

OzGrav (ARC Centre of Excellence for Gravitational Wave Discovery)
The mission of the ARC Centre of Excellence for Gravitational Wave Discovery (OzGrav) is to capitalise on the historic first detections of gravitational waves to understand the extreme physics of black holes and warped spacetime, and to inspire the next generation of Australian scientists and engineers. Step into the immersive universe with OzGrav's VR experience, where you will journey from familiar planets to the most extreme objects in space. The Expo activity highlights how astronomers explore stars, black holes, and cosmic evolution, building curiosity about the hidden forces that shape our universe.

UQ Mobile Makerspace

School of Education and Faculty of Engineering, Architecture and Information Technology, The University of Queensland
Across Queensland, students in regional and remote areas are full of creativity and curiosity, eager to explore, solve problems, and make their ideas real. But opportunities to engage with hands-on STEM learning can be hard to come by outside of major centres. The UQ Mobile Makerspace helps bridge that gap.
In this expo activity you will be invited to explore UQ's Mobile Makerspace and the wide range of STEM-focused tools, technologies, and activities available. You can learn how working in makerspaces fosters a maker mindset and promotes open-ended problem solving.

Discover and Do: How Maths is Made Meaningful

CSER STEM, University of Adelaide
CSER run a range of STEM programs for Australian teachers, including the online CSER MOOC courses, free professional learning events, and a National Lending Library.
In this Expo activity you will put randomness to test by interacting with Micro:bits and Ozobots to play Rock, Paper, Scissors. Is the technology truly making random choices? Our National Lending Library has these devices and a range of other robots available for schools to access for free. Teachers join us to find out more and discover the rich, curriculum-aligned resources.

Gravity Discovery Centre

Rayner Digital Labs
The VR Gravity Center immerses you in an interactive world where you can explore how gravity works through hands-on STEM experiences. Walk through virtual zones, manipulate objects, compare gravitational forces on different planets, and experiment with real physics concepts in a fun, engaging, and visually dynamic environment designed to inspire your curiosity and understanding.

Powering Wearables with You: Battery-Free Health and Fitness Technology

CSIRO
Have you ever seen The Matrix, where machines use human energy to power their world? What if using human energy could actually help people instead? In this fun, hands-on expo activity, you'll explore amazing battery-free wearable devices that are powered by your own movement. Jump, walk, or run—and watch how your motion creates energy to track fitness and health. You'll learn how ideas from physics, technology, data, and exercise come together to turn everyday movement into useful information about your body.
Get ready to discover how you can be the power source behind the next generation of smart health technology!

Digitech Tinker Lab

Digitech Tinker Lab
In STEM, tinkering is hands-on, open-ended exploration and experimentation with materials and tools, focusing on the process of discovery, problem-solving, and learning through doing, rather than achieving a specific outcome.
In this Expo activity you will have the opportunity to tinker with a variety of hands-on activities including robotics, microbits, stop-motion animation and cryptography.

Crash Control Challenge: Sounds and Sensors

MindSET-do (University of the Sunshine Coast)
As autonomous cars become more commonly used in society, issues concerning safety and crash prevention are required to ensure that both the public and passengers are kept safe.
In this hands-on expo you will use your knowledge of programming, sensors and micro:bits to solve this challenge and help stop your car from crashing.

Making Science Deadly!

Deadly Science
In this fun Expo Deadly Science will deliver an interactive STEM experience showcasing First Nations knowledge and science. You will explore materials science, engineering, and environmental science through hands-on Bush Soaps, Fish Traps, and Petroglyph activities. The space will be lively and engaging, sparking curiosity, conversation, and real-world STEM connections for learners of all ages.

Snowy STEM Academy - Thinking inside the box

Snowy Hydro - Snowy STEM Academy
Building one of Australia's biggest infrastructure projects to generate and store renewable energy is no small feat. Snowy 2.0 is like a giant battery for both storing and generating energy… but how? Stop by to investigate how a reservoir high in the Snowy Mountains is the key to harnessing Australia's natural renewable resources.
See if you have the problem solving and communication skills needed to build Snowy 2.0 - Australia's largest ever hydro project infrastructure the size of the Sydney Opera House that will be able to power three million homes!

Test your tastebuds, win a prize!

University of Queensland / Sustainable Minerals Institute
The tongue is an amazing organ! Your taste buds are invisible to the naked eye. Contrary to popular belief, those little bumps on your tongue are not taste buds. These are hair-like projections known as papillae. Your taste buds are microscopic and live on the ends of your papillae.
In this nifty expo activity, you will taste test a small sample of food and try and determine what its pH level is (we will explain what this means during the activity). We will then use litmus paper to check. If you guess correctly, you will win a prize! Who said Science can't be fun!

Make the invisible visible

Inspire STEM Education Outreach, The University of Queensland
Imagine having a microscope that magnifies and enhances the tiniest details — revealing a hidden world far beyond the limits of conventional resolution. With advanced microscopes, scientists can create images that make the invisible visible, uncovering structures and phenomena that the naked eye could never see. Suddenly, everyday materials transform into landscapes of extraordinary complexity and beauty.
In this Expo activity, you will have the opportunity to engage directly with nanotechnology and explore the hidden architecture of familiar objects using a Hitachi Tabletop Scanning Electron Microscope (SEM). Watch surfaces come alive in stunning detail and discover how desktop SEM technology allows us to investigate the building blocks of our world. Teachers can also learn more about the Inspire STEM Education Outreach Program, which brings high-tech research equipment into schools — empowering students to experience firsthand how modern science makes the invisible visible through hands-on exploration and real-world discovery, inspiring the next generation of innovators.

Virtual Art Painting

Rayner Digital Labs
Step into a virtual world of creativity where you become immersive artists. In this experience, you will use virtual reality to paint in three dimensions, bringing your ideas to life at full 1:1 scale.
This hands-on experience empowers you to explore spatial thinking, artistic expression, and digital creation in a way that traditional tools can't replicate, turning imagination into something you can walk around, interact with, and truly experience.

Fire Brigade Drones and STEM

Rural Fire Service QLD
Fire brigade drones are increasingly vital tools for emergency response, enhancing safety, speed, and decision-making during fires. They provide real-time aerial surveillance, thermal imaging, and live video feeds to incident commanders, enabling rapid assessment of fire spread, structural integrity, and hotspots—especially in smoky or hazardous environments.
In this hands-on activity a QLD Fire Department pilot will be flying the drone from the school oval next to the Expo area. Attendees can take control of the camera payload and learn about how the drones are used, how thermal imaging works, and how the Rural Fire Service protect people and property.

SailLAB – Australian Sailing STEM Education

Australian Sailing
SailLAB is an interactive, STEM-focused program designed to engage students with the science and technology behind modern sailing. Through hands-on activities, participants explore concepts like wind dynamics, hydrofoils, boat design, and sustainability, while learning about cutting-edge events such as the America's Cup and SailGP.
In this hands-on expo activity, you will explore how to operate a radio-controlled yacht, learn about hydrofoils and hydraulics, and discover the history of the America's Cup, with a focus on recent technological advancements and innovations featured in the Sail GP.

Foil Sculpting

Grace Lutheran College
Wētā Workshop is a world-renowned film effects company and creative studio based in New Zealand. The studio specializes in concept design, prop and costume creation, creature design, and visual effects for film, television, games, and immersive experiences. It has earned five Oscars for its groundbreaking work on films such as The Lord of the Rings, The Hobbit, Avatar, King Kong, and Black Panther: Wakanda Forever.
In this hands-on activity you will learn some of the techniques and methods, created by Kim Beaton (of Weta Workshop), to create 3D shapes and forms. Find out how quick, practical and inexpensive foil sculpting is for creating, from testing basic ideas, to creating replicas and models, to making full sized masterpieces.

Build your own habitat with Augmented Reality

Islamic College of Brisbane
Augmented reality (AR) integrates virtual content with the real world, which enhances the user's perception of reality in the physical world. It offers various applications in gaming, marketing, education, and training.
Join us in this journey where you can participate in part of one activity that the Islamic College of Brisbane runs with its students. Build your own habitat and see it come to life in front of you.

Demonstration of mineral processing technologies

Sustainable Minerals Institute, The University of Queensland
Mineral processing is the critical first step after mining that separates valuable minerals from waste rock, transforming raw ore into a concentrated, marketable product suitable for extractive metallurgy. Having effective and efficient processes are critical in Australia's transition to a net zero environment.
In this Expo you will learn about a novel comminution technology to break rocks using High Voltage Pulses (including a range of specimens of rocks that have been broken using this technology). You will also experience a simple demonstration of the froth flotation process and have the hands-on opportunity to separate two coloured sands using air bubbles.

Melting Metal Mementos

Mark Baker, Assumption College Warwick
When we think of something being a metal we often think of copper, gold, silver, iron and steel. These metals are known to be quite strong, have high melting points and are used in a variety of construction, technology and jewellery. However not all metals have high melting points and can be quite beautiful in a crystalline form.
In this STEAM expo, you will discover how Science and Art can merge to create exotic jewellery. Come along and see non-toxic bismuth metal melt and then make your own bismuth rainbow crystals to grow on an earring.

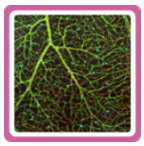
Game Design Challenge

BotBuilders
Game design is the process of creating and shaping the mechanics, systems, rules, and gameplay of a game. Typically, the development process is iterative, with repeated phases of testing and revision.
In this expo, you will learn about the importance of sequential thinking when building a simple multi-level digital game. Explore basic coding concepts, how-to plan game logic step-by-step, and design the game's visual elements to create an engaging and polished final product. You will also have the opportunity to play games that students have previously created.

Can we actually defy Gravity?

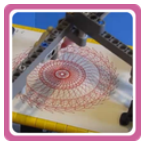
Students from Islamic College of Brisbane
Everyone has heard of the concept of gravity. Many might be aware that it is an acceleration towards the centre of the earth. But how did we get to $9.81 ms^{-2}$ as a value without the precision tools that we have today?
In this hands-on expo activity, you will make use of low-tech tools and data to obtain the value of g and demonstrate that our ancestors were able to innovate and discover laws not because of their tools, but because they were able to work with what they had.

Hidden Wonders: Science Under the Microscope



Ormiston State School
We are surrounded by an amazingly beautiful and complex world but most of it is hidden from us because it is so small! But science and technology have an answer!
In this expo you will be using ipads and digital microscopes to explore your environment – from soils, rock, leaves to surfaces and textiles. By zooming in on our world, we are better able to understand how the world works and interact within our surroundings.

Artist Challenge



BotBuilders
A Spirograph is a geometric drawing tool that uses rotating gears and shapes to create intricate, mathematically derived patterns known as hypotrochoids (when the pen rotates inside the larger shape) and epitrochoids (when the pen rotates outside the larger shape).
In this fun Expo activity learn how Art and Maths combine by creating your own piece of art using LEGO built spirographs! Choose your colours and design away. You can choose to keep your artwork or add it to the art wall.

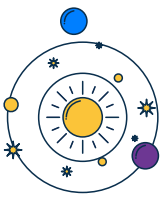
Make+Meld Design, Woodwork and STEM

Make+Meld
Explore, learn and play with wooden pinball machines and a range of other projects, all designed and constructed using simple hand tools, wooden components and sustainable materials, bringing curriculum aligned learning to life!

Robot Sumo: Drive & Compete with WiFi Robots

Stem Academy
STEM learning develops you as a thinker and problem solver by providing a learning-by-doing framework where you apply theoretical knowledge to practical engineering challenges.
In this hands-on Expo, you will drive a WiFi robot and battle in a sumo-style challenge. Two players compete to push their opponent out of the ring using a simple browser-based controller. No coding required to start, with clear links to classroom robotics, 3D design, and programming.






DigiDesign hands-on workshops - Student and/or Teacher

Think, Create, Prevent: Melanoma Awareness

The University of Queensland's Integrated Pathology Learning Centre
Australia has the world's highest rates of melanoma, where it is the third most commonly diagnosed cancer overall and the most common in people aged 20–39. Something needs to be done to inform and change the behaviours of young people.
In this workshop you will directly engage with real human pathology specimens that demonstrate the progression of melanoma from skin to internal organs. You will make close observations, discuss what you see, and then work collaboratively to brainstorm and design creative health campaign messages or slogans, applying your scientific understanding through design thinking and communication.
Suitable for Year 5 to 8 students and/or teachers

Black Holes and Gravitational Waves

OzGrav (ARC Centre of Excellence for Gravitational Wave Discovery)
How do scientists learn about invisible and exotic dark objects in space such as black holes? One way is to investigate how they create waves in the fabric of space!
In this workshop, you will learn about gravity and how to use it to understand things we cannot see in space! You will also learn about how objects like black holes come into existence and the scale of these compared to other things in space. Activities will include exploring the universe in virtual reality and using a gravity well to track the movement of objects in space.
Suitable for Year 6 to 8 students and/or teachers

Become the power behind Australia's sustainable energy future!

Snowy Hydro - Snowy STEM Academy
You might think it's magic that you can flick a switch and turn on a light at home. But where does that electricity actually come from? And how do we make sure it's enough to power Australia?
In this hands-on session you will be enchanted by an interactive, free online game that explores how the power of water generates electricity in the Snowy Mountains and leave spellbound by the opportunities to become a part of Australia's sustainable energy future. Teachers come along to play the game but also learn about the ready-to-go teaching resources you can use back in your school.
Suitable for Year 4 to 6 students and/or teachers

Maker Squad Manufacturing Challenge

Manufacturing Skills Queensland
The manufacturing sector contributes $20 billion to the Queensland economy and employs 180,000 people. In this session you will explore what manufacturing is and who is involved in it through a fast-paced design and production challenge.
Participants will form teams of six and then split into three pairs. Each pair takes on one of the Maker Squad roles from You Can Make It!

- The Designer – imagines and improves ideas
- The Doer – builds and tests the product
- The Organiser – plans the process and ensures quality

Each team must design and manufacture a simple product using limited materials, simulating a small manufacturing production line.
Suitable for Year 4 to 6 students and teachers

Fire Dynamics STEM Lab

Rayner Digital Labs
Fires in rooms, especially bedrooms and living areas, are a major risk for families, often starting from unattended cooking, heating, or electrical faults, leading to fast-spreading smoke and flames that require quick action.
In this workshop, you will use your critical and creative thinking skills to predict how fire spreads in several virtual rooms using a schematic worksheet. You will make hypotheses about ignition points, ventilation, and obstacles, then test predictions with real-time Blender simulations. This interactive approach will develop your scientific reasoning, problem-solving, and fire safety awareness. This is also a great workshop for teachers to participate in as it highlights how STEM learning can link to simulations in a curriculum-aligned, hands-on way.
Suitable for Year 6 to 10 students and teachers

Introduction to Sumo Robotics using mBot2

Corinda State High School
Learn the basics of the Sumo Robotics competition using mBot2 robots. This workshop will assume that you have never used a robot before and will go through the first steps of connecting to a robot programming it to move forwards and use basic sensors for the Sumo Robotics competition.
Participants will be encouraged to stretch themselves and use an iterative process to improve and extend their robot. A handout will be provided on how you can replicate this back in your school.
Suitable for Year 4 to 9 students and/or teachers

Designing Safe Habitats to survive climate change

Students from Islamic College of Brisbane
Engineering is the application of science, maths, and design in the creation of real-world structures. Engineers not only have to understand the underlying theories but to collaboratively work with others to problem solve possible solutions to challenges that may arise.
In this workshop you will be challenged to work in teams to build a habitat that will be safe during the changing of our climate. In QLD where rains are heavy, the habitat needs to be able to allow water to drain well, while being able to hold the weight of the water as it is draining.
Suitable for Year 4 to 7 students and/or teachers

The Science of Everyday Ingredients

Queensland Academy for Science Mathematics and Technology
Scientists are in the business of trying to understand the world. Exploring commonplace phenomena, they have uncovered some of nature's deepest laws. Today, you will become trainee scientists!
In this hands-on workshop you will explore the science of Acids and Bases. Using pre-dyed natural fabrics and a Red Cabbage detector, you will experiment on a range of everyday household items to determine their pH. A great activity that can even be done at home (with adult supervision of course)!
Suitable for Year 4 to 7 students and teachers

Bowling for Pythagoras

Tullawong State High School
Pythagoras' Theorem. A mathematical stroke of genius that has been widely used and worshipped across multiple industries for eons. $a^2 + b^2 = c^2$ has been a pillar strength in the physical world, but does it have a place in a new digital era?
In this hands-on workshop you will use digital technology to apply Pythagoras' Theorem in a game of bowling in the shape of a right-angled triangle. Can you knock down all the pins in one go? Or will you need to innovate? Discovery awaits.
Suitable for Year 6 to 9 students and/or teachers

DigiDesign hands-on workshops - Student and/or Teacher cont'd...

Community Creators

BOP Industries
Inspired by Volkswagen's Fun Theory, this mini workshop challenges you to explore how making the right behaviour fun can drive positive change. Working in teams, you will use a rapid design thinking process to create a simple technology solution that tackles a real issue in your local community.
Suitable for Year 5 to 10 students and/or teachers

Eco-Vision: Giving Trash a Brain

Southern Cross University
The Problem: Humans are actually pretty bad at recycling. Every time the wrong item hits the wrong bin, the whole batch can end up in a landfill.
The Mission: We're building a smarter solution. Instead of guessing, we're training an AI-powered "Digital Eye" to instantly identify and categorize waste. You'll use image recognition to turn a standard bin into a high-tech sorting machine, ensuring that plastic, paper, and metal actually get a second life.
Suitable for Year 4 to 10 students and/or teachers

The Cosmic Distance Ladder

St Ursula's College Toowoomba
Astronomers use special stars called Cepheid variables to measure distances in space. These stars get brighter and dimmer in a regular pattern, and the length of that pattern tells us how bright the star really is. By comparing how bright the star should be to how bright it looks from Earth, we can work out how far away it is.
Using this method, Edwin Hubble discovered that galaxies farther away have bigger redshifts — meaning they're moving away from us — which showed that the universe is expanding.
In this workshop, you'll step into the role of astronomers. You'll use this idea to estimate the apparent magnitude of Cepheid variables, then figure out how far they are from Earth.
Suitable for Year 6 to 10 students and/or teachers

Hidden Worlds Revealed: A Microscopic Science Adventure

Ormiston State School
We live in an extraordinary world full of beauty, complexity, and hidden detail — most of which we never see because it's simply too small for the naked eye. Fortunately, science and technology let us dive beneath the surface.
In this workshop, you'll use iPads and digital microscopes to explore the miniature landscapes all around you. From soil grains and rock textures to leaf structures, fabric fibres, and everyday surfaces, you'll zoom in to reveal patterns and features normally invisible to us. By magnifying our environment, we gain a deeper understanding of how materials behave, how living things are built, and how we interact with the world around us.
Suitable for Year 4 to 6 students and/or teachers

Curious Minds - Arduino Moving Bots

Murrumba State Secondary College
Curious Minds empowers Year 8 and 9 girls who are passionate, and have high potential in STEM, to explore education and careers in STEM through an eight-month hands-on extension and mentoring program.
In this hands-on workshop, a year 9 Murrumba State SC student will be using an Arduino Supported robot to explain the process of coding such a robot and then give you the opportunity to play with the code to learn how to move the robot. Finally, using the skills you have learnt, you will work in teams to experiment with the code to see how far you can get through an obstacle course. Failing is a part of the process!!
Suitable for Year 6 to 8 students and/or teachers

Mathematics, Geometry and Tessellations

Students from Islamic College of Brisbane
Arabesque tessellations are intricate, repeating geometric patterns commonly found in Islamic art and architecture. They are characterised by interwoven, symmetrical, and often infinite designs that typically avoid figurative representation. These patterns are created using mathematical principles, including symmetry, rotation, and reflection, to form complex, harmonious compositions.
In this workshop, you will use measurement and compasses to work though the math and science behind Arabesque tessellations, and draw tessellations based on the patterns. A great workshop to learn about how art and maths combine!
Suitable for Year 6 to 9 students and teachers

STEM Sail Racing with SailLAB

Australian Sailing
Sailing a boat involves an enormous amount of knowledge and application of STEM principles in the real world - maths, physics, forces, design engineering, oceanography, and meteorology.
In this hands-on workshop in the school swimming pool, Australian Sailing will deliver an interactive Radio-Controlled Yachts workshop. Students and teachers will learn how the yachts operate, explore points of sail and course geometry, practise basic manoeuvres, then participate in fun mini-races around a short course.
Suitable for Year 4 to 10 students and teachers

Build & Program a WiFi Robot (No Coding Required to Start)

Stem Academy
To learn how to imagine, invent, and shape the world, you need to learn how to problem solve and critically think as you apply STEM in authentic real-world situations. In this hands-on workshop, you will design, build, and control a low-cost WiFi robot. You will use the design process as a guide to help you figure out the best possible solutions. Along the way you will test how to control your robot remotely and how you can code it to respond automatically.
For teachers, this session integrates Design and Digital Technologies, offering a clear, classroom-ready pathway with accessible tools for beginner and experienced STEM teachers.
Suitable for Year 6 to 10 students and teachers

Problem Solvers Design Challenge - Student and/or Teacher

Each session has a different real life design or STEAM challenge to solve aimed at Year 4 to 10 students and teachers. You will be posed with a real life design challenge and lead through the design process to ideate and present possible solutions.

Think, Create, Prevent: Melanoma Awareness

The University of Queensland's Integrated Pathology Learning Centre

Australia has the world's highest rates of melanoma, where it is the third most commonly diagnosed cancer overall and the most common in people aged 20–39. Something needs to be done to inform and change the behaviours of young people.

In this extended hands-on problem solver, you will directly engage with real human pathology specimens that demonstrate the progression of melanoma from skin to internal organs. You will make close observations, discuss what you see, and then work collaboratively to brainstorm and design creative health campaign messages or slogans, applying your scientific understanding through design thinking and communication.

Suitable for Year 7 to 10 students and/or teachers

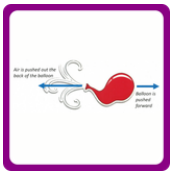
Autonomous Vehicles Challenge

STEM Punks

Imagine a world where cars drive themselves, reducing accidents and traffic congestion. This "dream" future isn't as far away as we think!

In this hands-on workshop you will learn about designing and programming vehicles that navigate independently while solving real-world problems as you go. This is a fabulous session for teachers to witness how STEM Punks Autonomous Vehicles challenge can foster innovation, creativity, and teamwork, and prepare future change-makers to address challenges in autonomous systems and smart technologies.

Suitable for Year 5 to 10 students and/or teachers



Build a balloon powered car

Engineers Australia

Engineers often must imagine and create solutions to problems with limited materials, time, or resources. This is what makes them extraordinarily creative and innovative problem solvers.

In this hands-on workshop, students and teachers will be actively designing, building and testing a balloon powered car using a limited set of materials. The objective is not only to construct a functioning car using the available resources, but also to test how far it can travel—encouraging creativity, innovation, and thoughtful design.

Come along and learn how you can be a trainee engineer - creating, experimenting, and problem solving in real time.

Suitable for Year 4 to 10 students and/or teachers

Creating a healthy food future

Professor Lindsay Brown, Griffith University

Since the arrival of fast food in Australia in the 1970's and increasing sedentary lifestyles started becoming more normal there has been a rise in obesity in all Australians. Data shows that approximately 1.2 million children and adolescents are living with overweight or obesity. What can we do about this?

In this challenge, you will explore the extent and the cost on people's well-being and health of the problem, look how functional foods can make a difference and brainstorm how to overcome a range of barriers to make a difference to this growing issue.

Suitable for Year 6 to 10 students and/or teachers

Inspired by Nature: Using Biomimicry to Design Bushfire-Resilient Communities

University of Southern Queensland

In this hands-on design challenge, students and teachers will explore how Australian plants and animals have adapted to survive bushfires and apply these ideas through biomimicry to design a solution for a bushfire-affected community. Using a guided design thinking process, you will empathise with community needs before, during, and after bushfires, analyse real biological adaptations, and creatively "mash up" nature-inspired features with human challenges. Teams develop a conceptual prototype and pitch their idea, leaving with a clear pathway for further exploration of biomimicry in design.

Suitable for Year 4 to 6 students and/or teachers

Bridge Builders Showdown

UniSC Engineers

Learning the elements of designing bridges is a core part of being a civil engineer as it is their job to ensure bridges can safely support traffic and their own weight over decades. They not only have to work out load-bearing capacity and structural integrity but the stability against environmental forces like wind, earthquakes, and floods.

In this hands-on workshop, you will design and build a bridge using paddle pop sticks and glue, then test its strength by adding weight. You will explore basic engineering concepts like forces and structural design while competing to create the strongest and most efficient bridge.

Suitable for Year 4 to 7 students and/or teachers

Stop Motion Animation

Digitech Tinker Lab

From the cinema classic 'King Kong' through to modern day favourites such as 'Wallace and Gromit', stop motion animation has been a popular film style.

In this workshop you will get creative and shoot a short, animated clip. From storyboarding to filming to editing, you will engage in creating your own slice of movie history. This is a great session for students and teachers alike!

Suitable for Year 4 to 7 students and/or teachers

First Nations Aquaculture

Deadly Science

Aboriginal and Torres Strait Islander peoples are pioneers of aquaculture, with sophisticated fish trapping systems found across the continent that have been engineered, maintained and refined for thousands of years. These systems work with water flow, seasons, and fish behaviour to support sustainable food systems and healthy ecosystems.

In this hands-on workshop, students and teachers work together in an engineering challenge inspired by First Nations fish traps. Using the DeadlyScience Fish Traps kit, participants design, build and test model traps that manage water flow and fish populations, exploring how Indigenous knowledge, science and engineering solve real-world environmental challenges through sustainability and systems thinking.

Suitable for Year 4 to 10 students and/or teachers

Run your own space tourism agency

Future You Australia, UNSW

Make your reservations now. The space tourism industry is officially open for business!

Working in teams, you will run a space tourism agency. Your challenge is to use your understanding of physics to protect an astronaut from the Sun's heat by designing a sun shield that keeps them cool (and stops them from melting!). You will decide who to hire for your team, build a sample heat shield, and work in teams through the Space Tourism game.

Suitable for Year 4 to 6 students and/or teachers

Data to Action: Innovating Climate Solutions for a Safer Future

CSIRO

Climate change affects the environment in many different ways, including rising temperatures, sea level rise, drought, flooding, and more. These events affect things that we depend upon and value, like water, energy, transportation, wildlife, agriculture, ecosystems, and human health.
In this hands-on workshop you will identify climate change challenges, particularly bushfire prevention in Australia. Using open data from government and research platforms, you will brainstorm a prototype for an innovative app or product, showcasing how data-driven solutions can mitigate climate risks.

Suitable for Year 7 to 10 students and/or teachers

Idea Sparks: Problem to Prototype

Living Faith Lutheran Primary School

To make the world a safer and more sustainable environment for all creatures will need us to not only brainstorm possible solutions but transforming those ideas into tangible, testable prototypes.
In this hands-on design thinking workshop, you will tackle real-world challenges related to the UN Sustainability principles. Working collaboratively, you will empathise, ideate, prototype, and present creative solutions, building confidence in problem-solving, teamwork, and innovative thinking. A great workshop for teachers as well!

Suitable for Year 4 to 8 students and/or teachers

Forces in Motion - Design + Build a Toy that moves!

Make+Meld

Engineers, designers and makers use their understanding of forces to design and analyse structures, machines, and systems that can safely withstand external loads without failure. Forces are pushes or pulls that can cause motion, deformation, or stress in materials. When designing items for movement it is important to consider the effect of forces but also safety and longevity of the structure.
In this workshop you will use the design thinking process to work collaboratively to explore, ideate, plan and then construct a toy using the tools, materials and parts provided. This session provides both students and teachers an opportunity to use basic hand-tools. woodworking and other basic construction techniques to bring design ideas to life. A great hands-on learning opportunity demonstrating how to make real world prototyping design solutions accessible and achievable for all teachers and students.

Suitable for Year 4 to 8 students and/or teachers

To Bee or not to Bee

Grace Lutheran College

Bees and pollinators are essential to global food security, ecosystem health, and biodiversity. They pollinate approximately 75% of the world's leading food crops and 90% of wild flowering plants, directly contributing to one out of every three bites of food we eat.
In this hands-on problem solver, you will invent a pollinator protection solution. You will explore pollination, ecosystems and biodiversity while inventing practical solutions to protect pollinators in urban environments, involving you in meaningful local environmental action.

Suitable for Year 4 to 7 students and/or teachers

Future Of Retail

BOP Industries

In this hands-on workshop, you will step into the role of retail innovators as you redesign a well-known brand for the next generation of consumers. Working in teams, you will explore emerging technologies, customer experience, and sustainability while developing and pitching a future-focused retail concept for an increasingly digital and experience-driven marketplace.

Suitable for Year 5 to 10 students and/or teachers

Engaging in inclusive music experiences

MindSET-do (University of the Sunshine Coast)

Music holds profound power over human emotions, thinking, and social connection. It can evoke deep memories, regulate moods, and enhance mental well-being. Music is also not exclusive to those who can hear it. For deaf and hard of hearing individuals they can interact with music through vibration, visual cues, and tactile feedback, transforming music into a multisensory experience.
In this hands-on workshop you will address the issue of how you could engage all members of the community, no matter their background, to actively participate in a musical experience. You will work in teams with the electrical resources provided, to create a flashing light display in time to a piece of music using an Arduino microcontroller.

Suitable for Year 4 to 8 students and/or teachers

The Logistics...

Further information

- In 2026 the It Takes a Spark STEM Conferences are being held in Queensland, Victoria and Western Australia.
- FAQ's, Impact, Media and News appearances can be found on our website.

Registration

- **Begins** at 9.45am / **completes** at 2.15pm
- Early bird registration is recommended ends **14/05/2026 or sooner if sold out**
- Book Now or Hold places: **you can** hold early-bird places whilst you gain approval. Complete the Registration form and select 'hold place'.
- Professional Development Certificate for Educators
- **Teachers** can attend without students.
- **Students** must attend with their teachers.
- All attendees to register
- Excursion pack available
- A light **Lunch** included for students and teachers.

Cost

- Educator / Teacher: **Early bird $175.00** / Regular fee $215.00
- Teacher presenter: complimentary*
- Pre-service, Aide/Support staff, Homeschool educator: **Early bird $65.00** / Regular fee $85.00
- Student: **Early bird $25.00** Regular fee $35.00
- Student presenter: $22.00*
- *Student* Scholarship may be available upon application*

Most schools register as a group!
Enjoy 5% discount when you register 8–15 students or 3–6 teachers, and 10% discount for 16+ students or 7+ teachers.

Travel arrangements available**
Request school pick up by Grace Lutheran College bus fleet - contact Rachel

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