

Tuesday, 16 September 2025

### Curiosity, Creativity and Community – innovating together

The It Takes a Spark! STEM Conference inspires and engages forward thinking Year 4 to 10 students, teachers and leaders in STEM.

#### Teacher Professional Development from leading STEM experts on topics as diverse as:

- Threads of Connection
- Creating Impactful STEM Programs with a Digital Technologies Approach
- Maths Made Meaningful
- Mastering micro:bits: learn how to engage students in solving real-world problems
- Building Global AI Literacy: Preparing Teachers for the Future of AI-Driven Classrooms
- Equipping students to be "Future Ready"

#### Hands-on workshops for students and teachers, examples...

- 💡 The AI ate my homework!
- 💡 Emergency response: Drone missions in flood zones
- 💡 Mission to Mars
- 💡 Plastic Recycling in Action: From Waste to Useful Products
- 💡 Minecraft Eco Detectives
- 💡 Orbital Lab
- 💡 VR Digital Storytelling
- 💡 STEM EXPO activities
  - \*DNA Extraction
  - \*Melting Metal Mementos
  - \*MagLev Technology
  - \*STEM Outreach Program AusEarthEd
  - \*SailLAB – Australian Sailing STEM Education
  - \*The Martian Garden
  - \*Drones to the rescue!
  - \*IXL Maths Leaderboard Competition
  - \*3D Designing and Technology
  - \*Use It Up! STEAM Mystery Ingredient Challenge
  - \*Using Machine Learning to solve real-world challenges

#### Problem Solver sessions: design challenges taking students and teachers through the design process including...

- 💡 Design Thinking: Rube Goldberg Machines
  - 💡 Moonbase – Designing to Survive and Thrive
  - 💡 The STEM Energy Game
  - 💡 Are we leading the AI revolution or is it leading us?
  - 💡 Solving Challenges in Public Works Engineering
  - 💡 Designing an Ideal Waste Service
  - 💡 Ethical Hacking – Improving Cybersecurity
  - 💡 How can technology shape how we investigate the past?
  - 💡 Formula CD Racing
- ...and many more

#### Outstanding Keynote Speakers



**PROFESSOR CHANDRA SALGADO KENT**  
Oceans Blueprint Founder + Marine Scientist  
Edith Cowan University

Ever wondered what it's like to navigate the oceans as a blue whale, the largest animal on Earth, or to explore an urban marine environment as an endangered sea lion? While we, as mammals, lack the ability to live underwater, Professor Chandra Salgado Kent brings us closer to these extraordinary creatures through cutting-edge technologies. By deploying satellite trackers, using drones, and listening to their vocalisations, Chandra monitors whales, dolphins, seals, and sea lions. She employs advanced statistics to evaluate how human activities impact these species and communicates findings to governments, industries, and communities to support protection of marine wildlife and their habitats. Born in Venezuela to a Spanish father and American mother, Chandra's early cultural connections to nature sparked her passion for marine science. She earned her PhD in Marine Ecology from Charles Darwin University and has since held leadership and mentoring roles at Curtin and Edith Cowan Universities. In 2018, she founded Oceans Blueprint to advance science communication and inspire action for sustainable oceans. Chandra is a WA Parks Foundation Ambassador, represents Australia on the International Union for Conservation of Nature's Marine Mammal Protected Areas Task Force, and actively supports equity, diversity, and inclusion in STEM.



**DR ADELLE GOODWIN**  
Astrophysicist + Superstar of STEM  
Curtin Institute of Radio Astronomy

Dr Adelle Goodwin is an astrophysicist and Forrest Research Foundation Fellow at the International Centre for Radio Astronomy Research. Her career pathway was forged by a love of reading, understanding why things behave the way they do, and a deep curiosity about space (like do black holes really devour everything in their path?). When you look up at the night sky, there are billions of stars twinkling, but, what happens when these stars die? Adelle's research looks at the objects we don't see: the dense remnants of dead stars called black holes and neutron stars. One of four sisters (including an identical twin), Adelle comes from a family of strong women that values finding what you are passionate about and following that pathway; whether it is medicine, environmental conservation, 18th Century French literature, or astrophysics. Adelle holds a PhD in Astrophysics from Monash University (2021), and a Bachelor of Advanced Science (Honours) from Monash University (2016). In addition to astronomy, Adelle is passionate about the environment, family, and playing team sports such as netball. In her free time, Adelle volunteers as a Night Sky Tour guide at the Perth Observatory.

#### Contact

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##### Host School

Frederick Irwin Anglican School  
36-66 Gordon Rd  
Mandurah WA 6210

##### Conference Coordinator

Dr Adrian Bertolini  
E: [adrian@spark-educonferences.com.au](mailto:adrian@spark-educonferences.com.au)



## Creating Impactful STEM Programs with a Digital Technologies Approach



### Australian Computer Society

This hands-on workshop is designed to help primary school educators plan exciting lessons and units that integrate the Digital Technologies Curriculum in meaningful ways into everyday learning. Discover practical strategies to design technology-rich activities that spark curiosity, creativity, and problem-solving in young learners. You'll leave with easy-to-implement ideas and a clear approach to connecting classroom learning to real-world applications. Whether you are introducing coding, robotics, or digital tools for the first time, this workshop provides the support and inspiration to engage your students in innovative and fun learning experiences.

**Suitable for Primary Teachers**

## Equipping students to be "Future Ready"



### Gosnells Robotics Club Network

Preparing students for the future is at the heart of what we do as educators. But in a jam-packed curriculum, how can we ensure they develop the critical skills needed for their future?

In this teacher session we will share a practical, engaging framework that distils the future-ready skills into the 5 Cs: Collaboration, Communication, Creativity, Critical Thinking, and Community—the essential capabilities students need to thrive beyond the classroom. We will also share a range of engaging activities that seamlessly integrate these skills into everyday lessons, giving you tangible ideas to bring them to life in your classes.

**Suitable for Primary & Secondary Teachers**

## Good Design - from Creativity to Reality



### Cliff Green, National Committee of Engineering Design of Engineers Australia

What is "good design"?

Does it meet the users' needs? Is it easy to manufacture? What materials would be involved? Will it be something people want to buy? There are lots of ideas and nuances to what has people judge a design as "good" or not.

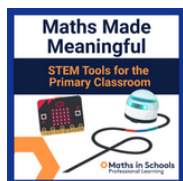
In this 80 min workshop, Cliff Green, who was recognized by Engineers Australia in 2016 as one of Australia's 50 Most Innovative Engineers, will lead you through a range of exercises and examples that will upskill you in creating designs that are "good" and manufacturable.

This masterclass is not just about enhancing your skills; it is about empowering you with tools and knowledge to help your students connect with design on a deeper level. You will leave with practical insights and resources to teach the principles of "good design," enabling students to apply their learning to real-world challenges and solutions—both today and in the future.

Led by an esteemed Consulting Design Engineer, this workshop is perfect for educators looking to inspire the next generation of innovators and creators in all subject areas.

**Suitable for Primary and Secondary Teachers \*80 minute session**

## Maths Made Meaningful



### University of Adelaide – Maths in Schools Project

Unlock the power of digital technologies to make maths engaging and purposeful.

In this hands-on workshop, you'll explore how Micro:bits and Ozobots can bring core maths concepts 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 & lower Secondary Teachers \*BYO internet enabled laptop**

## Mastering micro:bits: learn how to engage students in solving real-world problems



### Curtin University

Our team of STEM communicators will show you how to use micro:bits in your classroom, engaging students to create solutions to real world problems.

We will give you a crash course on the basics of block coding, before helping you to use a Smart Home extension kit to facilitate project-based learning using micro:bits. This is a great way to personally experience how you can lead real-world engaging learning that takes students through the design process. You will leave with a list of useful links and resources so you have the confidence to implement the use of micro:bits in your science and STEM classes.

**Suitable for Secondary Teachers**

## Threads of Connection



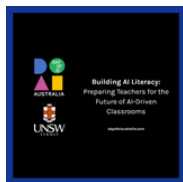
### Peter Carnley Anglican Community School

Curiosity and creativity are crucial for driving innovation. Curiosity fuels the desire to explore and learn, while creativity enables the application of that knowledge in novel ways leading to groundbreaking ideas and solutions.

In this hands-on textile workshop, you will explore curiosity and creativity through the art of thread bowl making. Using recycled threads and water-soluble stabiliser, we will innovate together to create unique, sustainable pieces. This workshop will demonstrate how you can easily adapt and implement this project to excite curiosity, creativity and innovation within your own school community.

**Suitable for Secondary Teachers**

## Building Global AI Literacy: Preparing Teachers for the Future of AI-Driven Classrooms



### Day of AI Australia

As AI continues to reshape society, it is essential that K-12 educators are equipped with the knowledge and confidence to both use the technology effectively and responsibly, as well as teach AI literacy to students. This interactive workshop draws on the Day of AI Australia program to provide foundational AI literacy for teachers, explore tools to support teachers' everyday work and how to guide students to be responsible users of the technology.

Participants will engage in collaborative discussions around how AI is currently being used by teachers and students outside of school as well as overcoming barriers such as limited technical background or time constraints. The session will address misconceptions, share adaptable resources, and highlight successful models of professional learning. Attendees will leave with practical ideas and a stronger network to support AI literacy across diverse educational contexts.

**Suitable for Primary and Secondary Teachers**

## From Curiosity to Classroom Innovation with VR

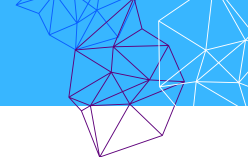


### VRTY.io

Virtual Reality (VR) is transforming learning by creating immersive, engaging, and personalized learning experiences. VR can significantly improve student engagement, understanding, and retention of complex concepts, and can also make learning more accessible for students with disabilities or in remote areas.

In this hands-on session you will learn how to integrate Virtual Reality (VR) into any stage of your STEAM journey using VRTY. The session will explore three flexible instructional models that align with the WA curriculum, encourage creativity, support differentiated learning, and promote ethical and sustainable innovation.

**Suitable for Primary and Secondary Teachers**



## Moving and Grooving with Granny: Creating digital solutions to help our elderly exercise



### Australian Computer Society

About half of the physical decline associated with ageing may be due to a lack of physical activity. Without regular exercise, people over the age of 50 years can experience a range of health problems including: reduced muscle mass, strength and physical endurance, reduced coordination and balance.

In this session you will investigate the real-life scenario of how current technologies have been used to support and assist the elderly to engage with exercise. Using these solutions as inspiration, you will design a new technology used to promote exercise for the elderly.

The session will follow the design thinking framework and is taken from a term unit of work created by ACS. Teachers will be provided with the complete unit of work and resources within the session.

**Suitable for Year 4 to 6 students and/or teacher**

## Emergency response: Drone missions in flood zones



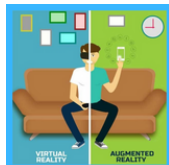
### Al-Ameen College

Drones are increasingly used in emergencies, such as floods, for disaster relief and recovery. They assist in completing missions that would otherwise be dangerous or challenging for humans, like delivering supplies, mapping affected areas, and locating isolated individuals.

In this workshop, you will explore how drones help during such emergencies. In teams, you will plan and program flight paths across a simulated flooded zone, completing various rescue missions using drones.

**Suitable for Year 4 to 6 students and/or teacher**

## Virtual and Augmented Reality



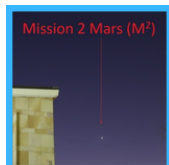
### Dale Christian School

Virtual and Augmented reality (VR / AR) is increasingly being used in construction, agriculture, mining, tourism, and even learning. With VR we can do site visits to historical places and hard to reach areas, see designs in 3D before they are built, support surgery, and much more. AR is used to improve manufacturing, guide and inform tourists, assist in healthcare, and much more.

In this workshop you will be introduced to the wide range of employment opportunities and uses associated with VR and AR. You will have the opportunity to interact with environments created by professionals and other students using Delightex before having a go at creating your own VR environment!

**Suitable for Year 4 to 8 students and/or teacher**

## Mission to Mars



### Gilmore College

The idea of sending humans to Mars has been the subject of aerospace engineering and scientific studies since the late 1940s as part of the broader exploration of Mars. Much like the Apollo missions were the spark for a generation of scientists, mathematicians and engineers in the 1960's, the Mars missions will ignite a new generation of STEM thinkers and doers.

In this hands-on workshop, led by Gilmore GEMS students, you will rotate through four activities that will showcase various aspects of a Mission to Mars: 1) Designing Mars habitats with LEGO, 2) Coding CoDrone Edu drones for interplanetary flights, 3) Coding SPIKE Prime robots for equipment transport, and 4) Remote (virtual joystick) controlling JIMU robots to simulate Mars surface movement.

Come and learn about Space STEM from the GEMS!

**Suitable for Year 7 to 10 students and/or teacher**

## The AI ate my homework!



### Cultivating Curiosity

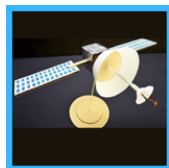
Homework has long been something teachers gave out to help students deepen their learning. However, as Artificial Intelligence systems improve, is homework becoming redundant since AI can be used to do the work?

In this interactive workshop you will explore the philosophical and ethical implications of the question: Should AI be allowed to help with homework? We will unpack what AI really is, how it can support learning, and where the ethical lines might be drawn. You will have the opportunity to use Lego to express your ideas, explore different viewpoints, test out scenarios, and decide where you stand.

This session is all about curiosity, creativity, and big thinking for the 5th Industrial Revolution. Perfect for budding changemakers who want to make sense of the tech shaping their world.

**Suitable for Year 4 to 6 students and/or teacher**

## Orbital Lab



### Perth Observatory

Satellites are amazing! They provide, amongst many other things, navigation, communication, disaster response, and monitoring the Earth's environment. Researchers from around the world use the International Space Station to address complex human health problems on Earth, study disease formation, test new technologies and much more.

In this hands-on workshop, you will build a model satellite using craft materials to solve a problem that humanity faces. Will it be used to monitor Earth's environment or explore space or test a new technology or study the effect of microgravity on plants? What problem will your satellite help solve for humanity?

**Suitable for Year 5 to 9 students and/or teacher**

## Minecraft Eco Detectives



### Perth Zoo

Explore the new and exciting Eco Detectives Minecraft for Education game. Take a sneak peek at the game as you move through four Minecraft created biomes and participate in conservation challenges along the way. Move from the virtual world into real life action and have a go at measuring habitat. In this session you will become an Eco Detective and act for wildlife. Teachers will learn more about the curriculum linked resources you can use in your classroom.

**Suitable for Year 4 to 7 students and/or teacher**

## Plastic Recycling in Action: From Waste to Useful Products



### Peter Carnley Anglican Community School

Plastic recycling is a process where waste plastics are collected, processed, and transformed into new, functional items. In this workshop, you will see how our plastic shredder and extruder turn discarded plastic into a durable carabiner. Our Year 9 students will demonstrate how different types of plastics can be repurposed, share insights into how we acquired and use these machines at school, and highlight the impact of community-driven recycling efforts.

**Suitable for Year 4 to 10 students and/or teacher**



## VR Digital Storytelling



### School of Isolated and Distance Education

VR storytelling is a method of telling stories using virtual reality technology to create immersive, 360-degree experiences. It allows users to explore a simulated world and interact with the narrative, enhancing engagement and emotional connection.

In this hands-on workshop, you will become VR creators as you build 360° virtual tours that share personal or local stories about place and identity. As part of the experience, you will view three short sample tours: a cultural tour highlighting Indigenous perspectives, an environmental tour focusing on sustainability and biodiversity, and an urban planning/history tour exploring community change over time. This workshop will give you the opportunity to explore how digital storytelling can connect culture, environment, and civic spaces within the curriculum.

**Suitable for Year 5 to 10 students and/or teacher**

## Further DigiDesign + STEAM Expo workshops to be announced...

### STEAM Expo: hands-on activity area - Student and/or Teacher (selected as one workshop as you move around the activities)



#### DNA Extraction

##### The Australian STEM Project

DNA, or deoxyribonucleic acid, is the molecule that carries genetic instructions for the development, functioning, growth, and reproduction of all known organisms. In this expo activity you will extract DNA from strawberries using household items. This will demonstrate the concept of DNA in living organisms visually. Even though it is microscopic, DNA can be extracted and observed with simple materials.

**Suitable for Year 4 to 10 students and teachers**



#### The Martian Garden

##### ARC Centre of Excellence for Plants for Space

On entering the Mars habitat, you will become the scientists needed to sustain life off-earth, plant biologists, engineers, psychologists, and food chemists. You will program vertical farms and harvesting robots, measure plant growth conditions, use DNA and imaging technologies, process plants and 3D print them into new Space-food products.

**Suitable for Year 4 to 10 students and teachers**



#### STEM Outreach Program (AusEarthEd)

##### Australian Earth Science Education

Explore the world of Earth Sciences and resources with the STEM Outreach program. Try your hand at coding Ozobots, explore Barrow Island through augmented reality, and test your skills in a realistic virtual training environment.

**Suitable for Year 7 to 10 students and teachers**



#### STEM in Mining - How Science, Technology and Engineering Make a Difference!

##### Hancock Iron Ore

Have you ever wondered how the STEM subjects you learn at school are used in real life? Join our Hancock Iron Ore team and become a real-life Environmentalist or engineer for the day! You'll get to see how cool subjects like biology, zoology, physics, chemistry and engineering all work together to help look after plants, animals and the environment at a mine. Try out fun activities like identification and remediation of contaminated soil, rehabilitation of land after mining, monitoring different types of animals, and see how compressing air and liquids can help you lift a heavy load. Come along and discover how the STEM skills you are learning now are used every day by our engineers and environmental scientists

**Suitable for Year 6 to 10 students and teachers**

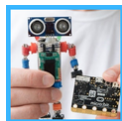


#### Drones to the rescue!

##### Al-Ameen College

The increasing frequency of floods, bushfires, and extreme weather events is leading to a range of ethical and logistical challenges when communities are isolated or unable to access essential supplies during these climate change emergencies. In this STEAM Expo, you will explore how drones are used during floods for disaster relief and recovery. Through immersive Virtual Reality (VR) simulations and Augmented Reality (AR) experiences, you will learn about how drones can assist in emergencies by delivering supplies, gathering data, and monitoring flood zones.

**Suitable for Year 4 to 10 students and teachers**



#### Exploring STEAM with micro:bits

##### Curtin University

The BBC Micro:bit is a small and inexpensive programmable minicomputer that you can use to code a variety of projects such as games and wearable technology. There is no fiddly wiring, making it suitable from middle years all the way to upper secondary schooling.

In this expo activity you can learn how to use the Micro:bit to create solutions to real world problems. Curtin University will have pre-made micro:bit extension sets on hand so you can play with and edit basic coding to solve a range of challenges. It is a great way for teachers and students to learn how valuable micro:bits are across multiple STEAM design challenges!

**Suitable for Year 6 to 10 students and teachers**



#### IXL Maths Leaderboard Competition

##### IXL Learning

IXL Learning are passionate about improving learning for all. We apply technology in thoughtful and innovative ways to unlock students' innate curiosity, creativity, and desire for knowledge.

In this exciting Expo activity students will compete in IXL Maths activities and be able to track the Maths competition leaders on a leaderboard. The overall winner at the end of the day will receive a tablet! Teachers will be able to find out how IXL's personalised learning can support students in building their skills and knowledge in Maths, English and Science.

**Suitable for Year 4 to 10 students and teachers**



#### Showcasing VR curriculum projects

##### School of Isolated and Distance Education – Laverton RRTT

Laverton School students will showcase immersive 360° virtual tours created using VRTY. Each project tells a personal or local story connected to culture, community, or future vocational pathways. You will get the opportunity to interact with their VR Projects on headsets iPads and Phones to explore student-created digital environments that express curiosity, creativity, and regional innovation.

**Suitable for Year 6 to 10 students and teachers**



#### 3D Designing and Technology

##### Gwynne Park Primary School

3D designing and technology involves creating three-dimensional models and designs, often for a variety of purposes like communication, product development, and entertainment. This field has applications across numerous industries, from manufacturing and architecture to film and game development.

In this hands-on Expo activity, you will have the opportunity to design real-world solutions using 3D software and bring them to life through 3D printing using Makers Empire. Teachers can explore ready-to-use resources and planning tools. Many printed models will be on display to explore, along with live demonstrations showing how 3D printing enhances hands-on learning.

**Suitable for Year 4 to 6 students and teachers**



#### Melting Metal Mementos

##### Mark Baker, Assumption College Warwick QLD

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.

**Suitable for Year 7 to 10 students and teachers**



#### MagLev Technology

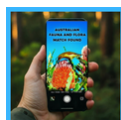
##### WeBuild

Get ready to float into the future with magnetic magic! Webuild's exciting Maglev Expo activity demonstrates how science and engineering team up to make trains levitate and zoom at lightning speeds.

Explore the power of magnetism: our model uses magnetic forces to lift the train off its tracks—say goodbye to wheels and friction! Dive into the physics behind how like poles repel, and discover how superconducting magnets and magnetic fields create this futuristic form of transportation.

From younger students curious about how magnets work to older teens exploring advanced concepts like electromagnetic induction and propulsion, there's something mind-blowing here for everyone.

**Suitable for Year 4 to 10 students and teachers**



#### Using Machine Learning to solve real-world challenges

##### Perth College

Machine learning involves algorithms that learn from data and improve predictions or decisions without explicit programming. It's a powerful tool in artificial intelligence, used across various fields to automate tasks, analyse data, and make predictions. In this showcase you will learn about an educational app developed by the Next Gen Innovators from Perth College with the Friends of Inglewood Triangle bushland group. It uses machine learning to identify local flora and fauna, shares Aboriginal plant knowledge, and raises awareness about dieback. Come and explore the interactive app they created and find out about their journey of following the design process to make it, skills they learnt along the way, challenges they had to overcome and improvements they would make.

**Suitable for Year 5 to 9 students and teachers**



#### Discover and Do: Maths Made Meaningful

##### CSER and University of Adelaide – Maths in Schools Project

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 have a chance to have a go at activities from our assortment of free National Lending library resources which include robotics – Ozobot, Micro:bits, BeeBots, BlueBots, Kais Clan, KaiBot, Merge Cubes and VR kits. Teachers will discover the rich, curriculum-aligned resources.

**Suitable for Year 4 to 8 students and teachers**



#### Use It Up! STEAM Mystery Ingredient Challenge

##### OzHarvest Australia

Each year Australians waste around 7.6 million tonnes of food across the food supply chain. This equates to about 312kg per person. Food waste costs the Australian economy around \$36.6 billion each year. The choices we make have an impact on how much food waste we produce. These choices are influenced by people's attitudes and behaviours towards food.

In this fun activity, you will reach into the OzHarvest Mystery Box to feel a surprise fruit or vegetable using only touch. After identifying it, you will brainstorm and design a creative recipe using the ingredient. This fun and fast-paced challenge builds design thinking, encourages food waste solutions, and empowers you to become sustainability-savvy chefs and changemakers.

**Suitable for Year 5 to 8 students and teachers**

## STEAM Expo: hands-on activity area - Student and/or Teacher (selected as one workshop as you move around the activities)



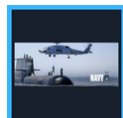
### CME DigiTech Automation Challenge

#### The Chamber of Minerals & Energy of WA

The Chamber of Minerals and Energy Digital Technologies Program helps schools deliver fun and engaging educational activities aligned with the Australian and WA Digital Technologies curriculum.

In this expo session you will explore how automation is used in industry by coding Micro:bit-powered vehicles. You will learn how digital technologies power innovation across energy, mining and manufacturing—right from the classroom. Come along, have a go, and talk about how the program can support your school!

**Suitable for Year 4 to 9 students and teachers**



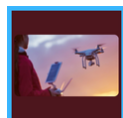
### STEM in the Navy

#### Submarine Recruiting

As advances in technology impact all of our lives, new jobs and new careers are emerging to keep up with the rapidity of change. The Australian Defence Force is leading the way in embracing these new technologies. STEM is more than a collection of subjects; it is a way of thinking – asking questions, considering data and evidence, and being curious.

In this hands-on Expo from the Submarine Recruiting Mentoring & Development team, you will be able to look on board a Collins & SSN Virginia Class submarine using our VR headsets, check out a robot used to demonstrate some of the STEM related equipment we use within the Navy and have a go at some 3D mind puzzles to test your thinking.

**Suitable for Year 7 to 10 students and teachers**



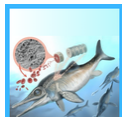
### Drones – shaping the future

#### South Metropolitan TAFE

The use of drones is expanding at an incredible rate in Australia and across multiple industries. The growth of drone use is expected to support 5,500 full-time jobs, on average, each and every single year over the next 20 years in Australia alone. Drones are being used to deliver medical items in regional Australia, track sharks around our beaches, map bushfire movements to support firefighting efforts, inspect infrastructure, spray weeds in agriculture and much more.

Come along and inspect some drones used in industry and discover the range of career opportunities and possibilities available to you!

**Suitable for Year 4 to 10 students and teachers**



### Travelling Back in Time

#### WA Organic and Isotope Geochemistry Centre– Curtin University

The WA Organic and Isotope Geochemistry Centre at Curtin University is a world research leader in the study of long extinct animals, prehistoric ecosystems, microbial life, the effect of microplastics on the environment and much more!

Visit the WA-OIGC expo booth where you can learn all about ancient life and paleoenvironments. With fossil samples that are hundreds of millions of years old and samples from the crater of the dinosaur killing asteroid, there are plenty of things to have a look at. Get your craft on and also have a go at making your very own glass marble fossil that you can take home.

**Suitable for Year 4 to 10 students and teachers**



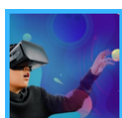
### SailLAB – Australian Sailing STEM Education

#### 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.

**Suitable for Year 5 to 9 students and teachers**



### VR Stellar Safari: Journey to the Cosmic Frontier

#### Perth Observatory

Embark on a thrilling VR journey through space! You will don your headset to soar among planets, witness stunning cosmic phenomena, and discover distant exoplanets. It is an immersive adventure that brings the wonders of the solar system and beyond right to your fingertips!

**Suitable for Year 4 to 10 students and teachers**

## Problem Solvers Design Challenge - Student and 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.



### Design Thinking: Rube Goldberg Machines

#### The Australian STEM Project

A Rube Goldberg machine, named after American cartoonist Rube Goldberg, is a chain reaction–type machine or contraption intentionally designed to perform a simple task in an indirect and (impractically) overly complicated way.

In this fun workshop you will work in teams to create a Rube Goldberg machine that pops a balloon using at least three simple machines (lever, pulley, inclined plane, wheel & axle, screw, wedge). This workshop will develop your design thinking and illustrate how simple machines can work together to perform a task and the concept of energy transfer and how complex systems can be built from simple parts.

**Suitable for Year 6 to 9 students and teachers**



### Moonbase – Designing to Survive and Thrive

#### ARC Centre of Excellence for Plants for Space

The ARC Centre of Excellence for Plants for Space aims to create on-demand, zero-waste, high-efficiency plants and plant products to address grand challenges in sustainability for Space and on Earth. If humanity is going to be exploring the universe, then we will need to reimagine plants, food, and farming.

In this design sprint session, you will explore the challenges of growing plants in space and come up with possible ways to grow plants to supply the foods, materials and medicines humans need to survive. Not just for survival but in ways that support happiness and mental health, and sustainable farming on Earth.

**Suitable for Year 4 to 10 students and teachers**



### Designing an Ideal Waste Service

#### City of Kwinana

Australians produce 540kg of household waste per person, each year. That's more than 10kg for every single person, every single week. Of the estimated 67 million tonnes of waste Australians generated in 2017, just 37 million tonnes was recycled, leaving 21.7 million tonnes disposed of in landfill. It's estimated about 130,000 tonnes of Australian plastic ends up in our waterways and oceans each year.

In this hands-on challenge, you will audit the materials flowing through your lives and design a waste service tailored to your household's needs. By exploring personal consumption, lifecycle thinking, and circular economy principles, you will have the opportunity to reimagine waste systems that are fit-for-purpose, future-ready, and reflective of diverse lifestyles.

**Suitable for Year 4 to 10 students and teachers**



### Are we leading the AI revolution or is it leading us?

#### Cultivating Curiosity

Artificial intelligence is no longer just the subject of science fiction—it's reshaping the way we live, work, and think. From voice assistants and deepfakes to algorithmic decision-making, AI is all around us. But with this power comes responsibility. What are the ethical implications of machines that learn, decide, and create? How can we ensure that technology serves humanity—and not the other way around?

In this hands-on workshop, you will use LEGO® Serious Play® to explore the complex ethical questions raised by artificial intelligence. You will build Lego models to represent the ethical implications of AI and environmental sustainability, copyright, the way we think for ourselves. Ultimately, you will consider the question, can AI ever be ethical?

**Suitable for Year 6 to 10 students and teachers**



## Ethical Hacking – Improving Cybersecurity

### South Metro TAFE

Ethical hacking is a process of simulating real-world attacks to identify vulnerabilities in systems and networks.

In this hands-on workshop you will explore how ethical hackers attack a network, find the vulnerabilities, and recommend changes to defend the network more effectively. Attendees will be using Raspberry Pi computers to do penetration testing on a simple access point provided by the presenter. This is a great workshop to practically showcase the importance of real-world cybersecurity.

**Suitable for Year 7 to 10 students and teachers**



## How can technology shape how we investigate the past?

### John Curtin College of the Arts

Technology is transforming how we investigate the past. From the use of drones for mapping, to new imaging technologies scanning and creating 3D models of historical artifacts and sites, to the use of AI to analyse historical texts, identify patterns, and even translate languages.

In this hands-on problem solver, you will work in teams on a FIRST Lego League (FLL) engineering challenge to generate solutions and ideas to investigate history using robots. This is not only a great way to learn about the FLL but also to see real-world STEM in action.

**Suitable for Year 4 to 7 students and teachers**



## Building Buzz

### Bloom: Centre for Youth Innovation

WA's Southwest has been named a Global Biodiversity Hotspot with native bees playing a critical role in maintaining this ecosystem for both scientific and recreational purposes, but bee populations are declining.

In this design thinking workshop, you will work collaboratively in teams to create innovative solutions to bee population decline. This will involve a range of hands-on design activities including building a prototype of your design using provided materials. A great real world design challenge!

**Suitable for Year 4 to 10 students and teachers**



## Using Lego to Prototype & Test the New Swan River Bridge

### E<sup>2</sup> Young Engineers Australia

Designing a bridge is not for the faint-hearted – it has life & death implications. The WA government is building a new \$100 million pedestrian & cyclist bridge alongside the existing causeway, separating path users from traffic. This will make it safer for all road users but it will have environmental and other implications.

You are part of the design team investigating and evaluating various design ideas. You have your teammates, a tray of Lego and your brilliant self to prototype and test the various design ideas.

**Suitable for Year 4 to 8 students and teachers**



## Where the wind blows!

### Engineers Without Borders – Curtin Chapter

The supply of reliable, efficient and affordable renewable energy is an immense challenge facing current and future generations. One of the possible solutions to sustainably and reliably powering the world is using wind energy. Wind turbines are structures that convert wind power into rotational energy by means of vanes called sails or blades.

In this design challenge you will design, build and test your own set of mini-wind turbine blades to make the most efficient and effective design possible. Along the way you will learn about engineering, sustainability and how to apply critical thinking to real-world problems.

**Suitable for Year 4 to 8 students and teachers**



## Solving Challenges in Public Works Engineering

### Institute of Public Works Engineering Australasia – WA

Community assets and infrastructure, also referred to as the built environment, are a complex system of facilities, structures, and the environment of a neighborhood that contribute to the quality of life and overall safety and health of a community. Public works engineers manage them and every day solve problems to make sure you have water, can get to school or work, and are safe.

In this fascinating workshop IPWEA WA & Young IPWEA will present a mock situation using real life issues. You will work collaboratively in teams to come up with solutions to resolve various problems. Learn how Engineers make decisions, manage evolving situations, deal with ethical conundrums, and respond to situations as they unfold.

**Suitable for Year 7 to 10 students and teachers**



## The STEM Energy Game

### Woodside Energy Ltd

Climate change is one of the largest challenges countries and all of us face as we progress through this century. Different states and countries use a variety of energy sources (coal, gas, solar, wind, hydro, nuclear, tidal, etc) to make up their energy mix. As we move into the future and want to avoid irreversible climate change these energy mixes need to change to lower greenhouse gas emissions, but at the same time supply the ever-increasing demand for power.

In this problem solver session, you will participate in a game that shows how an energy mix can vary from 2025 to 2050, based on choices your team makes, events which happen and a bit of luck. Teams will play as different states or countries and discover how the complexities of building new energy, removing others, and transitioning in-between changes over time as technology evolves and ending contracts gets cheaper.

To win the game you have to follow the rules, spend your money wisely and focus on three areas:

1. Reduce the carbon intensity of your electricity grid
2. Grow the electricity grid in line with the goal your team receives in 2025
3. Ensure your energy mix meets minimum requirements your team receives in 2050

**Suitable for Year 7 to 10 students and teachers**



## Formula CD Racing

### Northam Senior High School

The engineering of competition grade race cars is an involved process of designing, developing, and refining to achieve peak performance and safety. Engineers and designers need to balance the competing effects of friction, propulsion, drag, lift, and the handling and structural integrity of their designs.

In this hands-on workshop, you will work in small teams and use the design process to create and refine a model race car using recycled materials to race in a down hill competition. Can you use your skills and thinking to work out the most effective and fastest design?

**Suitable for Year 6 to 8 students and teachers**



# The conference theme: 'Curiosity, Creativity and Community – innovating together' will highlight how STEAM learning empowers curiosity, creativity and working together in communities to innovate and solve challenges

The 'It Takes a Spark! STEM Conference' on Tuesday, 16<sup>th</sup> September 2025 is a vibrant FULL-DAY of learning, connection, excitement, and imagination, designed by educators for students and teachers.

- **Engage** your students across the day with multiple opportunities, and innovative hands-on STEM learning allowing them time to 'Discover' new interests and further their ability to 'Dream and Do'!
- **Students** participate in three rotations of preselected student and/or teacher DigiDesign hands-on workshops, including the STEAM Expo activities, and Problem Solver Design Challenges.
- **Teachers** tap into the latest developments, innovations, tips, and tools in STEM from experts and practitioners.
- Professional Development stream including **Teacher Mini-Master** Classes gaining access to a broad range of STEM resources to implement back in the classroom.
- **Two** inspiring Keynote speakers connecting to a broad range of listeners.
- Time to effectively **network and collaborate** with other school, educators and industry experts, and gain insight into their STEM activities and programs.

## Flow of the day....

\*Listed program is subject to change

8.15am	Sign-in, coffee and networking
8.45am	Master of Ceremonies - Welcome, set up for the day and housekeeping
9.00am	<b>KEYNOTE SPEAKER</b>
9.40am	<b>ROTATION ONE - 40 minute parallel sessions</b> >> Teacher only Mini-Master Classes >> Student and/or Teacher DigiDesign hands-on workshops & STEAM Expo
10.25am	<b>MORNING TEA</b> - An opportunity to network with other teachers and students, and explore EXPO
11.00am	<b>PROBLEM SOLVERS DESIGN CHALLENGE - 80 minute parallel sessions</b> >> Design challenge sessions for Year 4 to 10 students and teachers
11.00am	<b>TEACHER ALTERNATE SESSIONS - 80 minute parallel sessions</b> >> Teacher Mini-Master Classes OR >> Teacher Networking and STEM Pathways session <ul style="list-style-type: none"><li>◦ Opportunity to connect with other teachers and presenters to share ideas, possibilities and practices. Meet with the sponsors in the STEAM Expo area to discuss (without students) how they can support you in delivering and inspiring STEAM in your school</li></ul>
12.25pm	<b>LUNCH</b> - An opportunity to network with other teachers and students, and explore EXPO
1.00pm	<b>KEYNOTE SPEAKER</b>
1.40pm	<b>ROTATION TWO - 40 minute parallel sessions</b> >> Teacher only Mini-Master Classes >> Student and/or Teacher DigiDesign hands-on workshops & STEAM Expo
2.30pm	<b>FEEDBACK AND CONFERENCE COMPLETION</b> >> Awarding of prizes to attendees >> Completion of feedback form
2.45pm	<b>CLOSE OF THE CONFERENCE</b>

## Who the conference is for...

- **Year 4 to 10 students** - those who are already (or aspire to be) STEM Leaders in your school OR students' schools wish to spark an interest in, and engagement 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 connect and elevate their STEM discipline
- **Principals and Deputy Principals** - to witness what is possible by embedding STEM authentically in your school
- ...and the event is a 6 hour Professional Learning day for teachers - **certificate provided**

### Further information

In 2025 the It Takes a Spark STEM Conferences are being held in a Western Australia, Victoria and Queensland. FAQ's, Impact, Media and News appearances can be found on our website.

### Registration

- Educator / Teacher: Early bird \$205.00
- Regular fee \$245.00
- Teacher presenter: complimentary\*
- Pre-service, Aide/Support staff, Homeschool educator: Early bird \$79.00
- Regular fee \$99.00
- Student: Early bird \$30.00
- Regular fee \$35.00
- Student presenter: \$27.50\*
- \*T&C's apply.
- Scholarship may be available upon application

### Inclusions, Hold Places, Early bird

Begins at 8.45am / completes at 2.45pm

**Early bird** registration is recommended **closing** 13/08/2025

Book Now or Hold places: you can **hold early-bird places** whilst you gain approval. Complete the Registration form and select 'hold place'.

**Teachers** can attend without students.

**Students** must attend with their teachers.

Excursion pack available

Morning tea and Lunch included for **students and teachers**.

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## Contact

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Dr Adrian Bertolini

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**Book Now or Hold Places**

**[spark-educonferences.com.au/registration-16-september-2025-wa/](http://spark-educonferences.com.au/registration-16-september-2025-wa/)**