

# TASMANIA

Friday, 29 November 2024

# It Takes a Spark!

STEM Conference

## STEAM - creating and shaping a thriving future

The theme of the conference is to highlight how STEAM empowers leaders, develops changemakers, and shapes the transition to a future that works for everyone and everything. The conference will explore the approaches and pedagogies that support developing future ready learners, raise awareness of the opportunities and pathways to future careers, and foster interdisciplinary and cross-cultural partnerships with industry, universities and STEAM organisations. Learners (young and old) can only be what they can see!

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

### Teacher Professional Development from leading STEM experts, teachers and students on topics as diverse as

- >> First Steps to designing a well-planned STEM program
- >> Developing authentic cross-curricular learning - Digital Tech in Textiles
- >> Teaching STEM with a First Nations Focus
- >> Cyber Team Red

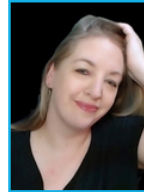
### Hands-on workshops for students and teachers, examples...

- >> Strong in flight
- >> Lumination Lab VR experience
- >> Lego Medication Designers
- >> STAR coders colour sensor conundrum
- >> Building Your Business
- >> Treasure Hunts and finite state automata
- >> All about the Milk
- >> Amazing Agar Art
- >> An Electrifying experience!
- >> Detecting the Unseen: Dark Matter
- >> STEAM EXPO activities
  - \*Drone Experience
  - \*Moshi Moshi! Live stream from Tassie to Tokyo!
  - \*Australian STEM Video Game Challenge
  - \*GreenSTEM Education
  - \*Tasmanian Minerals
  - \*Ad Astra!
  - \*Blast Off to the Virtual Universe!
  - \*Play and Learn with Questacon
  - \*AMC Showcase: Ship Simulator Experience

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

- >> Designing Smart Clothing
- >> Hungry Minds for Solving Food Challenges
- >> Igniting Startup Sparks
- >> Binary Computational thinking challenge
- >> WotNot Chatbot How Hot!
- >> Redesigning Waste
- >> Writing your own choose your own adventure stories with Yarn Spinner
- >> Creating structures for a sustainable future
- >> First Tools and Weapons use in Lutruwita
- >> Doing it Scared

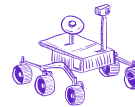
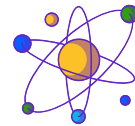
## Outstanding Keynote Speakers



### DR MEREDITH CASTLES

Associate Lecturer in ICT, Information and Communication Technology  
University of Tasmania

Dr Meredith Castles is a university lecturer, Interaction Design Science researcher specialising in both Human and Animal-Computer Interaction, and a science communicator. She has worked extensively as an actor and writer in the TV, film, stage, and radio industries, speaking on panels and MCing events regularly Australia-wide. Meredith uses her skills in interaction design science to help create digital interactive experiences for people in fields as diverse as archaeology and space science. She co-hosts and helps produce the 2023 Eureka Prizes award-winning STEM podcast That's What I Call Science and solo hosts a live-streamed science communication show called Dr. Meredith on Twitch TV and YouTube twice weekly to teach people about science fundamentals through conversation and video gaming. Her main research interest is in harnessing the power of Citizen Science and Human Computer Interaction to design more ethically focused and accessible technology for improving people's lives. From her work in participatory science, Meredith created a new model for the sustainability of Women in ICT for Tasmania, aimed at retaining women by creating role models who can communicate to a diverse audience.



### DR SAMANTHA SAWYER

Food Scientist and Superstar of STEM  
University of Tasmania

Dr Samantha Sawyer is seeking solutions to keep Australian businesses globally competitive economically, socially, and environmentally. Whether that means helping industries be more resilient to climate change, finding ways to process food waste into great tasting and nutritious food, or improving production systems to be efficient and socially conscious. She received a 2022 Science & Innovation Award (Wine Australia) for her project helping the wine industry adapt to climate change. Samantha is currently a Lecturer and Research Fellow in Food Science at the Tasmanian Institute of Agriculture (University of Tasmania). She is passionate about STEM outreach and engagement in regional areas and mentoring students and junior staff members to discover and achieve their career aspirations.

## Contact

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## Host School



Launceston  
Grammar  
EST. 1846

## Conference Coordinator



Intuyu  
Consulting  
Empowering  
21st Century  
Learning



Register: [spark-educonferences.com.au/tasmania-2024/](https://spark-educonferences.com.au/tasmania-2024/)

## First Steps to designing a well-planned STEM program



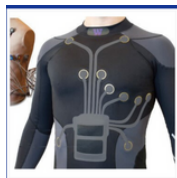
### Dr Adrian Bertolini, Intuyu Consulting

Schools often begin enacting STEM by introducing STEM clubs or activities at lunchtime or after school, having STEM specialist subjects and maker spaces, or even participating in STEM competitions. These approaches are all great ways to begin laying the groundwork for a sustainable STEM program. The challenge for many schools will be moving STEM from these groundwork laying activities to an authentic STEM program that delivers the desired outcomes.

In this session Adrian will outline the thinking and planning that primary schools will need to do if they are going to design a whole school STEM program that delivers. This includes discussing creating a design brief for a STEM program, mindset and capabilities planning, learning ladders, and curriculum mapping approaches. Templates for planning will be provided.

**Suitable for Primary Teachers**

## Developing authentic cross-curricular learning - Digital Tech in Textiles



### Launceston Church Grammar School

Integrating STEM knowledge and approaches into other curriculum disciplines not only helps learners develop problem-solving, critical thinking, and collaboration abilities but makes learning more meaningful and engaging to them. Yet many secondary school teachers struggle with how it can be done.

In this session teachers will be led through a practical cross-curricular approach to embedding Design Thinking and Digital Technology in Textiles. Participants will explore the concept of Smart Clothing – clothing that monitors the wearer's physical condition using technology. Teachers will leave with an appreciation of how to begin developing authentic and engaging cross-curricular learning with their colleagues.

**Suitable for Secondary Teachers**

## Teaching STEM with a First Nations Focus



### Catholic Education Tasmania

For at least 65,000 years First Nations peoples have been creative problem solvers, particularly in STEM. From Indigenous astronomy to chemistry, maths, medicine and physics, First Nations peoples were the world's first scientists.

In this teacher session you will learn how to plan engaging STEM lessons to include the AC Cross Curriculum Priority Aboriginal and Torres Strait Islander Histories and Cultures. Uncle Hank Horton and Cat Midson explore the Australian Curriculum Organising Ideas and the FIRST Framework for engaging with your local Aboriginal Community with a focus on our local context lutruwita/Tasmania.

**Suitable for Primary & Secondary Teachers**

## Cyber Team Red



### Questacon

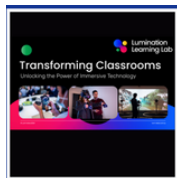
The Australian government has identified cyber security as one of the six industry sectors considered vital for the long-term prospects of the Australian economy. But how can we support young people to learn about cyber security and the multitude of careers in the cyber industry?

In this teacher session you will have the opportunity to discover this through playing the tabletop role-playing game - Cyber Team Red. Cyber Team Red is designed for 2 to 4 players aged 12 and up and explores cyber security concepts using teamwork, problem solving and communication. Players take on the roles of elite cyber professionals who live within the game world, making decisions and dealing with the consequences as the mission is completed. No experience in tabletop role-playing games or cyber security needed.

This is a fun, engaging and gamified way to learn (and teach) about the cyber industry!

**Suitable for Upper Primary and Secondary Teachers**

## Transforming Classrooms: Unlocking the Power of Immersive Technology



### Lumination

Augmented Reality (AR) and Virtual Reality (VR) technologies have revolutionized learning approaches through immersive digital experience, interactive environment, simulation and engagement. The use of innovative technologies such as AR and VR can bridge the gap between traditional classroom instruction and real-world experience, providing tangible benefits for the development of learners.

In this teacher session, being held in Launceston Grammar's VR Lumination Learning Lab, you will learn how you can begin to integrate immersive technology (VR/AR) into classrooms. You will gain hands-on experience, explore curriculum alignment, participate in collaborative activities, and receive practical tips. Come and gain some confidence in creating engaging, interactive lessons that enhance student learning!

**Suitable for Upper Primary and Secondary Teachers**

## DigiDesign Mini-workshops - Teacher and/or Student

### Building Your Business



### University of Tasmania

An entrepreneur is an individual who creates a new business, bearing most of the risks and enjoying most of the rewards.

Entrepreneurs play a key role in any economy, using the skills and initiative necessary to anticipate needs and bring new ideas to market. One of the big challenges most entrepreneurs face though is that they lack the financial literacy to manage their new business successfully.

In this workshop you (students and teachers) will collaboratively create a digital business model that integrates elements of design, technology, and financial literacy. This activity will highlight how financial decisions can impact technological advancements and artistic designs, preparing you for future entrepreneurial endeavours.

**Suitable for Year 4 to 6 one session / Year 7 to 10 one session students and/or teacher**

### STAR coders colour sensor conundrum

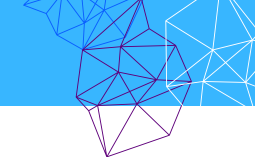


### Star of the Sea Catholic College

You are an excited STEM student at a new school. On your first day you make a wrong turn through a door which shuts and locks behind you. Weirdly you discover that you are in a maze with colours. Even worse the STEM students have accidentally released a killer bot into the maze. Can you use your coding skills to find your way out?

With the help of skilled coders, you will discover and deploy light sensor bots to create a code that guides you through the maze and away from the bot assailant.

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



## Detecting the Unseen: Dark Matter



### ARC Centre of Excellence for Dark Matter Particle Physics

Dark Matter is the mysterious material that scientists think makes up over 80% of our Universe but has not yet been directly detected. Australia is at the forefront of Dark Matter research. The Southern Hemisphere's first Dark Matter direct detection lab was built in regional Victoria and began operating in 2021! The science of dark matter involves everything from the largest structures in the Universe to the smallest known particles that make up the atom.

In this session, students and teachers will be guided through activities to understand how scientists learn about the 'invisible' with clues from the cosmos and to understand how scientific discoveries are building our understanding of matter in the universe. Teachers will receive lesson plans to bring these activities back to their classrooms.

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

## Strong in flight



### Rosebery District School

Helicopters are a type of air vehicle in which the forces of "lift" and "thrust" are supplied by rotors. A helicopter can take off and land vertically, hover, and fly in any direction. Rosebery District School has been investigating rotor designs that are best to use in Helicopters and Drones.

In this workshop participants will have the opportunity to design, build and test helicopter models using everyday materials. The final challenge will be to find out which design can 'lift' the helicopter the highest off the ground.

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

## Treasure Hunts and finite state automata



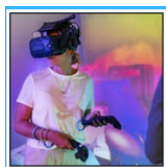
### Guilford Young College

You are a new pirate searching for the mythical treasure island in the Southern seas. Pirate ships sail along a fixed set of routes between the islands on a map. However, the pirates don't let anyone not in their special society have this map because they want to keep the route to Treasure Island secret. The goal is to find a sequence of ship rides that will get from Pirate's Island to Treasure Island.

In this workshop you will use maps and instructions (finite state automata) to navigate an island-based treasure hunt by considering routes, loops as well as sources and sinks. There will be an opportunity for you to understand how computers work. Will you find the treasure?

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

## Lumination Lab VR experience



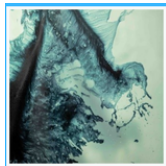
### Launceston Church Grammar School

Lumination Learning Labs are smart classrooms that use virtual reality and augmented reality technology for experiential learning across all subjects linked to the Australian Curriculum.

In this session you will have the opportunity to visit Launceston Grammar's VR Lumination Learning Lab and experience a fully immersive virtual reality experience. The Lumination Lab provides deeply creative learning options that include – virtual worlds, design thinking, interaction with vocational education. Experience a deep dive into the amazing world of Virtual reality.

**Suitable for Year 4 to 7 one session / Year 8 to 10 one session - students and/or teacher**

## Amazing Agar Art



### Launceston Church Grammar School

This hands-on session explores the crossover between Art and Science and looks at the use of bio polymers for scientific and artistic purposes. Based on the art of Jessie French, it shows artistic creativity of creating bio-polymer art, while developing an understanding of sustainability and the importance of environmental products.

**Suitable for Year 6 to 10 students and/or teacher**

## Lego Medication Designers



### School of Pharmacy and Pharmacology, University of Tasmania

Drug design is the inventive process of finding new medications based on the knowledge of a biological target. In the most basic sense, drug design involves the design of molecules that are complementary in shape and charge to the molecular target with which they interact and bind. Drug design frequently but not necessarily relies on computer modelling techniques and bioinformatics approaches in the big data era.

In this workshop you will discover what is involved in designing new drugs. You will look at drug receptor sites within the human body, and key properties that influence these sites and the flow-on effect of creating drugs that target receptor sites within the human body. Finally, you will use Lego to create a drug molecule model to fit into Lego receptors!

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

## All about the Milk



### Curtin University

We all know milk is good for our bones and our growing bodies—but this amazing substance has way more to offer.

In this fascinating hands-on workshop, you will participate in a range of activities involving modelling bioplastics, testing milk glue against wood glue for strength, methods for making yoghurt and ice-cream. This is a great workshop to learn both practical skills and conceptual understanding in science. Teachers are most welcome to come along and find out how they can run this in their schools.

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

## An Electrifying experience!



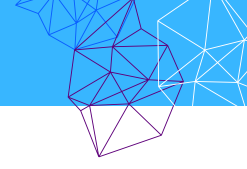
### Launceston College

Electricity has transformed the way we live, interact and understand the world around us. It has become a formidable source of energy on which our daily lives depend. How does the electric kettle produce hot water? Why do automatic headlights in cars come on when it's dark, what makes it possible to dim the lights in the cinema before the movie starts?

This hands-on workshop utilises simple electric circuit designs to demonstrate the science behind technologies we use daily. You will have the opportunity to participate in the "Renewable Energy Challenge", where you will use your engineering design and electric circuit know-how to build the most efficient wind turbine.

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





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



### Australian Computer Society

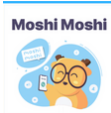
About half of the physical decline associated with ageing may be due to a lack of physical activity. Without regular exercise, people over the age of 50 years can experience a range of health problems including: reduced muscle mass, strength and physical endurance, reduced coordination and balance.

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**

## STEAM Expo: hands-on activity area - Student and/or Teacher

(selected as one workshop, activities may not run in both rotations)



### Moshi Moshi! Live stream from Tassie to Tokyo!

#### St Mary's College Hobart

In a global learning and working environment it is important to develop knowledge, values, communication and critical thinking relevant for the digital age. Communicating and collaborating with others using online platforms can foster a culture of acceptance, diversity and help all of us to play an active role in becoming global citizens.

In this expo activity you will be connecting via live stream to a class of students and teachers in Tokyo, Japan. With support from students from St Mary's College you will have the opportunity to offer a friendly greeting, compare favourite foods, animals and anime or play a game of rock paper scissors with friends from afar!

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



### Drone Experience

#### Pakronics

Drones are used for a wide range of activities including search and rescue, surveillance, traffic monitoring, firefighting, photography and videography as well being used increasingly by organisations such as energy companies, agriculture and mines to inspect their assets. Drones are also great in STEAM education in learning about programming, design, robotics, and more.

In this STEAM Expo activity, you will have an opportunity to learn how to fly safely and show your drone maneuver to your class!

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



### GreenSTEM Education

GreenSTEM Education, based on the NW Coast, is Tasmania's pioneering STEAM education charity with the purpose of advancing education through providing equitable access to excellence in STEAM education for all young people and the wider community.

In this action-packed STEAM Expo you will experience a number of exciting hands-on activities including:

- Greenpower Tasmania, including an F24 electric vehicle built by students – try to beat their lap times on a VR racing simulator around the iconic Goodwood Motor Circuit
- FIRST Lego League – program a Lego robot to complete missions in the new SUBMERGED robot game
- Viewing and testing projects made by participants of STEM Unlimited, our free after-school STEM program
- STEM on Track – get an early look at our exciting new STEM program launching in 2025 where young people can build a go-kart and learn about the STEM concepts underpinning each step through gamified online learning modules

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



### AMC Showcase: Ship Simulator Experience

#### Australian Maritime College

The Australian Maritime College (AMC) at the University of Tasmania is the national institute for maritime education, training and research. Our students enjoy access to the Southern Hemisphere's most advanced collection of maritime facilities including ship simulators, training and research vessels, as well as a Model Test Basin, Towing Tank and Cavitation Laboratory.

In this expo you will experience what it's like to be in control of a vessel using a ship simulator. Along the way you will learn what a career in the maritime industry might look like, and how Maths and STEM studies provide a pathway to these opportunities.

**Suitable for Year 8 to 10 students and teachers**



### Are you a Plant Detective?

#### ARC Centre of Excellence for Plant Success

Plant adaptation is when a species develops special features or 'traits' in response to its environment that can improve its chance of survival. These adaptations are then passed down into their offspring and slowly evolve over a long period of time.

In this expo you will learn about some of these unique traits that have helped plants survive extreme environments such as heat, drought, cold and flood...all things we see more frequently now due to climate change. You'll be able to touch and feel traits on real plant examples, see inside plants with our cool paper microscopes and see if you can solve the climate puzzle! Will you figure it out?

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



### Australian STEM Video Game Challenge!

#### Montello Primary School

The Australian STEM Video Game Challenge (STEM VGC) is a free national video game development competition for students in Years 3 to 12. It is a fun challenge that aims to engage more students in STEM and enable them to develop real world skills required to succeed in work and life.

This expo display will showcase some of the video games developed by Montello Primary School and Parklands HS students that were entered into the 2024 STEM Video Game Challenge. Students will be available to share about the process of making their games and help you learn how to make games of your own (Scratch, MakeCode Arcade and GameMaker). Come and learn how you too can be a game creator!

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



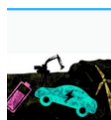
### Blast Off to the Virtual Universe!

#### OzGrav (ARC Centre of Excellence for Gravitational Wave Discovery)

In the Universe, massive objects warp the fabric of space-time and colliding black holes create waves that spread out over millions of light years in space!

In this session, students will explore the planets of our solar system, the varieties of stars in our universe, and beyond to exotic objects such as black holes! Using virtual reality exploration, students will observe and learn about: differences and similarities among planets, why stars have different sizes and colours, how stars change over time, how stars affect the motion of objects in space, and how scientists observe dark objects like black holes.

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



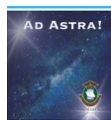
### Tasmanian Minerals

#### College of Sciences and Engineering, University of Tasmania

You'd normally think that rocks and earth science wouldn't be much fun – that's because you haven't met Sebastian!

In this fabulous Expo activity, you'll learn about Tasmania's complex geology and investigate the relationship between the geology and mineral deposits. You'll have the chance to try and work out which minerals from Tasmania are used for making various items used for transport, infrastructure and consumer items. You also discover how the properties of minerals can help with mineral identification but also investigate how these properties are related to their end use in society.

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



### Ad Astra!

#### St Mary's College Hobart

Space is so cool!

This expo shares two students' love and excitement for all things space! Learn how to track satellites, follow the 3D satellites the girls created on display with a satellite tracking app, and even find out what picture of the universe was taken by the Hubble space telescope on your birthday! Come and meet these potential future Australian astronauts and find out how cool space is!

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



### Play and Learn with Questacon

#### Questacon

Questacon is focused on supporting young people to develop the attributes, skills, knowledge, and agency to thrive in tomorrow's world. We do this through creating and delivering interactive, relevant, and fun experiences!

In this Expo come and participate in activities such as:

- The Leaning Tower of Lire exploring engineering principles
- Hand-cuff challenge and one hand knot tying challenge.
- Coding friendship bracelets
- No-Code coding

Teachers - come and find out about all the great learning experiences and resources we provide!

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



### The Amazing World of Science!

#### Launceston Church Grammar School

Science allows us to develop new technologies, solve practical problems, and make informed decisions – both individually and collectively. Having a scientific bent of mind is the beginning of exploring and understanding the vast universe around us.

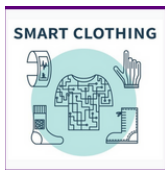
In this expo come and discover some amazing science and learn about:

- Edible insects and sustainability: learn about food sustainability, new sources of food to address world hunger, and even "try" an insect!
- Human bodies: go on a VR journey through the digestive system or how the body fights a virus
- Health of Sheep: students from Launceston Church Grammar created an app to track the health of sheep that won an Innovation Challenge and a senior encouragement award even though they are Juniors
- Reducing animal methane production: two students sharing the Rotary prize winning Asparagopsis water pump they designed to reduce methane production in livestock

**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.



## Designing Smart Clothing

**Launceston Church Grammar School**

Smart clothes are clothing items that have been enhanced with technology to add functionality beyond that of the traditional use. Some smart clothes use advanced textiles with interwoven circuitry, while others implement sensors and additional hardware to give it its smart functionality. Many smart clothes can connect to an app or program on a secondary device using Bluetooth or Wi-Fi. In this problem solver session you will learn how to design, create and program your own smart clothing using micro:bits. Take a step into the future of wearable and smart fashion. Discover how real-world STEM learning is awesome!

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



## Hungry Minds for Solving Food Challenges

**Tasmanian Institute of Agriculture, University of Tasmania**

Food loss (loss that occurs post-harvest, but prior to the consumer), as well as food waste (since purchase by consumers) are contributors to negative environmental impacts (including carbon emissions), social impacts (availability of food), and economic impacts (loss of income). Ensuring nutritious food is available to growing populations globally is a fundamental requirement. In this problem solver session, you will take a deep-dive into the sources of food loss & food waste, their key differences, and designing potential solutions to these issues. You will be prompted to consider: social, environmental, economic & ethical impacts to guide your solutions, and the scale of impact. This is a key real-world problem and we need solutions to ensure quality food is not going to waste.

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



## Igniting Startup Sparks

**Enterprize Tasmania**

Startups are young companies founded to develop a unique product or service, bring it to market and make it irresistible and irreplaceable for customers. Rooted in innovation, a startup aims to remedy deficiencies of existing products or create entirely new categories of goods and services, disrupting entrenched ways of thinking and doing business for entire industries. That's why many startups are known within their respective industries as "disruptors."

In this problem solver session, you will learn how to be an entrepreneur and generate innovative startup ideas by identifying real-world problems using Design Thinking. By the end of the session, you will be able to identify a problem, create a solution, and learn how to communicate your solutions in a single sentence.

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



## Binary Computational thinking challenge

**Launceston Church Grammar School**

First invented by Gottfried Leibniz in the 17th century, binary is a base-2 number system representing numbers using a pattern of ones and zeroes. Early computer systems had mechanical switches that turned on to represent 1, and turned off to represent 0. By using switches in series, computers could represent numbers using binary code. Binary is still the primary language of computing systems. In this hands-on problem solver session, you will learn to develop an understanding of binary, and its practical uses. It is a fun and creative way for you to develop your problem solving and computational skills

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



## WotNot Chatbot How Hot!

**Launceston Church Grammar School**

At the most basic level, a chatbot is a computer program that simulates and processes human conversation allowing humans to interact with digital devices as if they were communicating with a real person. People like them because they help them get through those tasks quickly so they can focus their attention on high-level, strategic, and engaging activities that require human capabilities that cannot be replicated by machines.

In this hands-on problem solver session, you will learn about the structure, capabilities, and issues with chatbots. You will brainstorm a detailed solution to a problem, then use Wotnot to build a chatbot that solves the problem.

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



## Redesigning Waste

**University of Tasmania**

Every day, the world sends about 5 million tonnes of waste to landfill. This figure is already well beyond what most countries can currently handle, but it will nearly double by 2050 if business continues as usual. It is critical that we find creative solutions to collect, process and transform all the waste that already exists, while extending the useful lives of the things we already have.

In this problem solver session, you will play with shifting the creative design process from fulfilling a preconceived idea using new materials to starting the creative process with existing materials and objects. You will have the opportunity to make/reimagine an object from waste materials/objects provided and discover how you can repurpose existing objects and materials for benefit.

**Suitable for Year 8 to 10 students and teachers**



## Writing your own choose your own adventure stories with Yarn Spinner

**Secret Lab**

Video games approach storytelling in a unique way. To create a good game, we have to fuse 'old fashioned' narrative and stories (or yarns) with some sort of technology. A great way to start learning how to do this is to write your own 'choose your own adventure' stories with the free, open-source tool, Yarn Spinner.

In this problem solver session, with nothing more than your web browser, you will have the opportunity to create a multi-path book, with a branching story! This is a great way to learn how to create an exciting video game.

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



## Creating structures for a sustainable future

### UTAS School of Architecture & Design

Tasmania's forests are home to the tallest flowering trees on the planet. Centuries-old, these tall trees are the lungs of our land. This incredible place is one of the largest remaining intact temperate forest ecosystems on planet Earth. Rather than continuing to log native forests for wood it is important to learn how we can create structures for a sustainable future.

In this problem solver you will work in teams, using a range of complex timber elements in the Forest in a Box kit of parts, to design and assemble prototype structures for various scenarios that address different design and sustainability challenges.

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



## First Tools and Weapons use in Lutruwita

### St Mary's College Hobart

Uncle Hank Horton is an Aboriginal Elder (Keeper/sharer of Culture). He has a wealth of knowledge, experience and skills in Aboriginal culture, history and education, and his extensive expertise brings together ancestral wisdom and his experience of actively contributing to today's Aboriginal Community.

In this problem solver session you will learn about Aboriginal culture, including use of tools and resources for hunting and living in traditional times, such as clap stick making / painting, and spear and waddie throwing, as well as dance and the use of ochre. You will have a chance to test your spear and waddie throwing technique and speed with an outdoor component.

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



## Doing it Scared

### Doug Grubert, Paul Pritchard & Doug Grubert Education

Paul Pritchard was a world-class rock climber with an international reputation for difficult and bold ascents. In 1998, on a visit to Tasmania, he suffered a catastrophic head injury in a climbing accident that left him fighting for his life. Paul spent a year in hospital and was left hemiplegic. He has spent the last 25 years overcoming a variety of day-to-day challenges: some obvious, others not so obvious.

In this Problem Solver Challenge you will put yourself in Paul's shoes to help you identify challenges that confront people with disability every day. You will go through the design process to brainstorm some solutions to create and evaluate a model kayak, canoe or recreational watercraft suitable for the needs of a person with disability.

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

## 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 2024 the It Takes a Spark STEM Conferences are being held in Melbourne, Perth, Tasmania and Queensland.
- Registration and FAQ's can be found on the website, along with Media and News appearances for reference.

### Registration

- Begins at 8.45am / completes at 2.45pm
- Early bird registration is recommended **closing 30/10/2024**
- Book Now or Hold places: you can hold places whilst you gain approval. Register and select 'hold place'.
- **Teachers** can attend without students.
- **Students** must attend with their teachers.
- Excursion pack available
- Morning tea and Lunch included.



**FRIDAY 29 NOVEMBER 2024**  
**LAUNCESTON CHURCH GRAMMAR SCHOOL**  
SENIOR CAMPUS, 36 BUTTON ST MOWBRAY TAS 7248

**Register: [spark-educonferences.com.au/tasmania-2024/](https://spark-educonferences.com.au/tasmania-2024/)**

## 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 **KEYNOTE SPEAKER - DR MEREDITH CASTLES**  
**ASSOCIATE LECTURER IN ICT, INFORMATION AND COMMUNICATION, UNIVERSITY OF TASMANIA**
- 9.40am **ROTATION ONE - 40 min parallel sessions**  
>> Teacher only Mini-Masterclasses  
>> Student and/or Teacher DigiDesign hands-on workshops & STEAM Expo
- 10.25am **MORNING TEA** - An opportunity to network with other teachers and students, and explore EXPO
- 11.00am **PROBLEM SOLVERS DESIGN CHALLENGE - 80 min parallel sessions**  
>> Design challenge sessions for Year 4 to 10 students and teachers
- 11.00am **TEACHER ALTERNATE SESSIONS**  
>> 80 min Teacher Networking and STEM Pathways session
  - o Opportunity to connect with other teachers and presenters to share ideas, possibilities and practices.  
Meet with the sponsors in the STEM Expo area to discuss (without students) how they can support you in delivering and inspiring STEM in your school
- 12.25pm **LUNCH** - An opportunity to network with other teachers and students, and explore EXPO
- 1.00pm **KEYNOTE SPEAKER - DR SAMANTHA SAWYER**  
**FOOD SCIENTIST AND SUPERSTAR OF STEM, UNIVERSITY OF TASMANIA**
- 1.40pm **ROTATION TWO - 40 min parallel sessions**  
>> Teacher only Mini-Masterclasses  
>> Student and/or Teacher DigiDesign hands-on workshops & STEAM Expo
- 2.30pm **FEEDBACK AND CONFERENCE COMPLETION**  
>> Awarding of prizes to attendees  
>> Completion of feedback form
- 2.45pm **CLOSE OF THE CONFERENCE**

## THANK YOU TO OUR SPONSORS

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### Contact

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Host School



**Launceston  
Grammar**  
EST. 1846

Conference Coordinator



**Book Now or Hold Places**  
[spark-educonferences.com.au/tasmania-2024/](https://spark-educonferences.com.au/tasmania-2024/)