

It Takes a Spark!

EDU Conference

Wednesday 26 May 2021 | TASMANIA

Be the Changemaker: STEM can take you anywhere!

The intent of the Conference is to bring together Students (Year 4 to 10) and their teachers to connect with inspiring industry role models for an immersive day of interactive STEM workshops. Participate in current school based activities and projects, create networks of teachers and student teams, and solve real life design challenges.

Teacher PD workshops from leading STEM experts, teachers and students on topics as diverse as

- >> Using Tasmanian mapping tools in your class
- >> Assessing and Leading Transdisciplinary Learning - not just STEM!
- >> Design Learning by Doing – Forest in a Box
- >> Creating Engaging Social Change STEM Projects
- >> The Journey to STEM
- >> Micro:bits supercharging STEM

Hands-on sessions for students and teachers, examples

- >> Deep Learning and Machine Vision
- >> Machine Vision on Lego!
- >> Creative Thinking and Low-Fi Prototyping
- >> Learning to Code, Coding to Learn
- >> Caring for Little Penguins in Sandy Bay
- >> Create. Remake. Innovate.
- >> Drones and Hydro Tasmania
- >> Use of Stop Motion Apps in the Science Classroom
- >> Fire Fighting with a Minecraft AI
- >> Robot Rubbish Run
- >> Data Delivering Drones
- >> Virtual Vision
- >> Evolution Uno
- >> STEM EXPO and more...



Problem Solvers Sessions, including

- >> The Trouble with Transfer (and Tribbles)
- >> Future Seafood
- >> Submerged Structures and Submarines
- >> The Game Changer
- >> Cool the School: co-creating actions on climate change
- >> My House Rules

PLUS many more...

Outstanding Keynote Speakers

DR JENNIFER LAVERS

**Institute for Marine and Antarctic Studies,
University of Tasmania**



Dr Jennifer Lavers is a marine eco-toxicologist with expertise in seabird ecology and plastic pollution. The long term monitoring of seabird colonies has taken her to remote locations around the globe. She has worked for the Royal Society for the Protection of Birds and the US Fish and Wildlife Service in Hawaii and the Canadian Sub-Arctic. She coordinates community environmental activities for school groups and hosts dozens of science workshops and seminars every year. Ultimately, Jennifer hopes her research will contribute significantly to the responsible use of plastic products as well as the management of wildlife at risk from plastic ingestion across the globe.

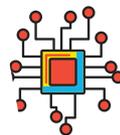


DR STAS SHABALA

University of Tasmania



Dr Stas Shabala is a highly respected research scientist in his primary field of extragalactic astrophysics and is passionate about science participation and outreach. Stas is a strong believer in the power of science education and acknowledges the importance of his own science teachers to his highly successful career in science. Stas attended Taroona High School, Hobart College and the University of Tasmania before heading overseas to complete his PhD in astrophysics and cosmology at the University of Cambridge. He subsequently spent some time working at Oxford University, before returning to Tasmania to set up a theoretical astrophysics group at the University of Tasmania.



MORE INFORMATION: spark-educonferences.com.au/it-takes-a-spark-tasmania-2021/

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Design Learning by Doing – Forest in a Box

Forest Education Foundation



Research shows that hands-on learning with natural materials makes a huge difference for some learners. Forest in a Box- Design and make is a wood based resource encouraging students to investigate design and innovation in wood with a hands-on construction kit. Find out how you can use this resource to explore the design and technologies curriculum, while also supporting many other cross curriculum outcomes.

School / teacher stages: Beginner, Next Step & Extending
Suitable for Primary Teacher

The Journey to STEM

Chris Bracken, Catholic Education Tasmania



Building a whole school STEM strategy can be challenging, but all schools have plenty to tap into, in terms of experience and context, to make this happen. In this teacher session, Chris Bracken will share the most effective approaches, strategies and resources he has discovered, and used to work with schools, to embed STEM pedagogy and practice from K-12.

Chris's talk will include Illustrations of Practice, support models he has used in his work with schools and how to leverage existing strength in the Science, Maths, DT and Engineering disciplines within a school to maximise STEM learning and outcomes.

School / teacher stages: Beginner, Next Step & Extending
Suitable for Primary and Secondary Teacher

Assessing and Leading Transdisciplinary Learning – Not just STEM!

Dr Adrian Bertolini, Intuyu Consulting



There are a lot of misconceptions about STEM learning and what is important to focus on when leading it and assessing it. In this workshop we will discuss and explore some of the key lessons that teachers need to learn as they take the journey of being effective in enacting STEM learning.

We will also explore various approaches to measuring learning progression in transdisciplinary units including the underlying thinking frameworks of the Technologies Curriculum. Attendees will leave with a range of tools they can begin to apply in their own classes.

School / teacher stages: Beginner, Next Step & Extending
Suitable for Year 4 to 8 Teacher

Creating Engaging Social Change STEM Projects

Rose Bray and Anna Viney, Ten Lives Cat Centre



Authentic social change STEM projects provide the opportunity for students to apply their knowledge, skills and thinking to make a difference in their communities. This not only empowers the students as change makers but also engages them in meaningful learning that can matter to them. In this session teachers will be led through the process of creating an engaging social change STEM project using the Edu.Cat STEM program as a case study. Teachers will leave with resources to create their own social change projects in their schools.

School / teacher stages: Beginner, Next Step & Extending
Suitable for Primary Teacher

Using Tasmanian mapping tools in your class

Tom Wilcox & Michael Hogan, Hydro Tasmania

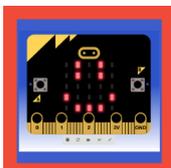


Gathering, analysing and managing data are skills critical to fields such as HASS, digital technologies, science and mathematics. This fun, hands-on workshop will introduce teachers to GIS mapping tools that support making data and the concept of energy visual and interactive for their students in various grades. Teachers will explore maps that show rainfall, wind, solar, waves, geothermal and hydro resources in Tasmania and will be given free, relevant, online lessons that can be integrated into the mapping tools.

School / teacher stages: Beginner
Suitable for Primary and Secondary Teacher

Micro:bits supercharging STEM

James Riggall & Troy Merritt, Bitlink



The micro:bit is a cheap pocket-sized computer that introduces students to how software and hardware work together. It has 25 red LED lights and two programmable buttons. Jam packed with input and output possibilities; these engaging devices can be used to turn creative STEM ideas into real world applications.

This session will focus on:

- How micro:bits are being used in schools - from introductory lessons through to open inquiry activities
- The possibilities and potential of adding sensors for a wide range of classroom STEM activities
- The best resources out there to take the next step in your micro:bit journey.

Underpinning all the above foci will be multiple examples of micro:bit use with students in schools.

School / teacher stages: Beginner, Next Step & Extending
Suitable for Primary and Secondary Teacher

Deep Learning and Machine Vision

Dr Bob Elliot, Tasmanian Dept of Ed Gifted Online & Leo Febey, Hobart Hackerspace



Machine learning already has many applications you are familiar with; YouTube recommendations, SIRI, face recognition, and license plate readers. It can do some jobs better than lawyers or doctors, write books that sell on Amazon, and even write music. Machine learning is a very important topic with big impacts on our society. In this workshop you will get started with the basics of deep learning and computer vision that has applications to Robocup Junior competitions, drones, STEM projects, and much more. While Python coding skills are not essential for the workshop, basic Python coding skills will be useful for exploring machine vision beyond the workshop.

Suitable for Year 6 to 10 Student and / or Teacher

Learning to Code, Coding to Learn

Doug Bail, Cider House ICT



The integration of Blockly into PASCO's SPARKvue and Capstone gives you unparalleled control over science experiments and the opportunity not only to learn to code, but code for deeper learning of key scientific ideas. For example, you could use an understanding of the pH of different liquids to code automatic identification of each liquid. In this session we'll code with real data to output data based decisions. **Make sure you install** the free PASCO Sparkvue from <https://www.pasco.com/downloads/sparkvue> on your **own device and bring it** to this session - we'll have some additional units to use as well.

Suitable for Year 6 to 10 Student and / or Teacher

Forest in a Box – Design and Make

Forest Education Foundation



Explore some of the ways you can build, design and create with Forest in a Box- design and make. Participants will use the wood based resource to complete a range of challenges, each focusing on creativity, problem solving skills and design thinking.

Suitable for Year 4 to 10 Student and / or Teacher

Creative Thinking and Low-Fi Prototyping

Dr Bronwyn Eager, University of Tasmania
College of Business and Economics



We are raised to think that half of 18 is 9. But what if we told you that there are many possible answers to the question 'what is half of 18', and all the answers are correct!!! In this workshop, we challenge conventional ways of thinking by applying innovation tools and designing creative solutions to problem-based scenarios. Attendees will be introduced to George, an alien from a far-away planet who's facing problems relating to themes of 'play' and 'communication'. During the session, attendees will build physical prototypes aimed at solving George's problems. The workshop aims to demonstrate that the first answer that pops into your head (e.g. half of 18 = 9) is only the beginning and that 'good' ideas become 'great' when we apply innovative thinking techniques.

Suitable for Year 4 to 10 Student and / or Teacher

Machine Vision on Lego!

Dr Bob Elliot, Tasmanian Dept of Ed Gifted Online & Leo Febey, Hobart Hackerspace



The accessibility of machine vision to the beginner has gradually improved in recent years. Running computer vision software on devices like the Raspberry Pi was slow and difficult for beginners and/or did not use the full power of deep learning. In 2019 this changed with a new chip making it possible to run moderately complex convoluted neural network (CNN) models at reasonable speeds at a very affordable cost. This workshop will build upon the Deep Learning and Machine Vision workshop in rotation #1. You will learn how to put a pre-existing CNN model on the beginner-friendly MAIX board and then interface the MAIX board with a Lego EV3. This will allow you to unleash the power of machine vision in your school projects and Robocup competitions!

Suitable for Year 6 to 10 Student and / or Teacher

Create. Remake. Innovate.

Libby Moore, Moore Educational



What makes students successful in STEM is the confidence to create. In this workshop students will use the design process to investigate solutions to the real-world problem of "Clean up Australia". They will build, test, and evaluate their robotic prototypes using LEGO Education SPIKE Prime and scratch-based coding. Students will be inspired to develop the STEM skills today to be the innovators of tomorrow.

Suitable for Year 5 to 8 Student and / or Teacher

Caring for Little Penguins in Sandy Bay

Drs Rachael Hurd, Emma Pharo, Geography, Planning and Spatial Sciences
University of Tasmania



The people of Hobart, and those living in a wider circle around the River Derwent estuary, share their city with several colonies of the world's smallest penguin species, the fairy or little penguin. Since the little penguins nest in the shingle and scrub behind the beaches they are at risk from a wide range of human caused influences. In this Digidesign session, teams of attendees will go through the process of empathising about the Little Penguins and their habitat, behaviours and needs. From this exploration the teams will code a flight of a drone over a simulation of the Derwent estuary around Sandy Bay to gather data on penguin habitats and catchment areas that drain into the penguin colony area. Flight paths will need to take into account coastal and inland habitats as well as the beach environment.

Suitable for Year 4 to 10 Student and / or Teacher

Virtual Vision

Joshua Lippis and students, Guilford Young College



At least one billion people globally have some sort of vision impairment that has yet to be addressed. The majority of them are over 50 years of age. In this workshop attendees will use Mindstorm Lego to create devices and programs that help people with vision impairments navigate the world.

Attendees will choose a programming language that suits their level of ability (Scratch or Java) and work in pairs to build devices to sense colour and distance. This is a great introduction to coding, robotics and real life problem solving.

Suitable for Year 4 to 10 Student and / or Teacher

Meet Micro:bit!

James Riggall & Troy Merritt, Bitlink



The BBC micro:bit is the newest and easiest way to learn programming and electronics. The colour-coded programming blocks are familiar to anyone who's previously used Scratch, and yet powerful enough to access all the features of this tiny computer. In this session James and Troy from Bitlink will run attendees through some of the activities in an Internet of Things education kit they have been developing.

Suitable for Year 4 to 6 Student and / or Teacher

Fire Fighting with a Minecraft AI

Joshua Lippis and students, Guilford Young College



Attendees will work through a Minecraft challenge, learning about how AI is trained and how it can be used in the real world. They start by programming an AI bot in the game to move, and then train it in increasingly complicated tasks as the challenge progresses. They eventually train the bot to recognise and clear inflammable foliage to help prevent fires.

Suitable for Year 4 to 8 Student and / or Teacher

That Resonates!

Julie Fryer, Guilford Young College



This session will explore the issue of resonance and its impact on engineered structures as well as our everyday lives. We will observe resonance in metal plates and discuss how engineers need to take resonance into account when designing structures like bridges, high-rise buildings, and stadia. We will then do a mini-experiment into an everyday example of resonance.

Suitable for Year 5 to 10 Student and / or Teacher

Robot Coding Challenge

TasNetworks STEAM Program



Robots are being used in an increasing range of situations from agriculture, surgery, production, and even exploring other worlds! The graduate engineers from TasNetworks will introduce attendees to computer coding, logic skills, and simple robotics and sensors. Attendees will then have the opportunity to solve problems and overcome challenges as you code a robot to achieve a goal. This session is open to students and teachers of any level of coding experience and completes with some sharing about STEAM careers.

Suitable for Year 4 to 10 Student and / or Teacher

Jumping Kangaroos

Brett Stephenson, Guilford Young College



Can you get the kangaroos to the other side?

To solve the Jumping Kangaroos challenge requires a systematic approach to the moves of the 'kangaroos'. Interestingly enough the patterns of moves yields a fascinating mathematical relationship. In this fun session attendees will figure out the best way to solve such problems and how discovering the patterns in the movement of the kangaroos lead to accurate predictions and the underlying mathematics. Jump on in!

Suitable for Year 6 to 10 Student and / or Teacher

STEM EXPO: hands-on activity area - Student and / or Teacher (5 to 15min activities)



FIRST - More than just an acronym!

Students from St Virgil's College

Come and find out about the FIRST robotics competition which develops students to change the world! Students will share about how FIRST stands for "FOR INSPIRATION and RECOGNITION of SCIENCE and TECHNOLOGY" and will showcase their robotics projects. They will share about the opportunities the FIRST program offered them as well as the teachers. You will also get to find out what options are available for students and schools in Tasmania.

Suitable for Year 5 to 10



Robot Rubbish Run

Serena Hinds, Julia Murrie and students from Rosebery District School

Robots build cars, make our electronics, and even vacuum our houses. So why can't robots collect rubbish in our streets? In this STEM Expo activity attendees will have the opportunity to code Ozobots to go around a town map, collecting the rubbish. The activity aims to demonstrate how time management can be improved for council workers collecting rubbish around local towns.

Suitable for Year 4 to 10



Circuit Design Challenge

TasNetworks STEAM Program

Circuits - they are everywhere! From your phone, to your TV, to your house lighting, car, laptops, stoves, doorbells, and even on Mars! In this Expo session you will have a range of circuit design problems to challenge your thinking and problem solving. Along the way you will learn about electrical concepts such as conductivity, current and voltage while chatting to a group of TasNetwork engineers. Come along and see if you can solve the challenge!

Suitable for Year 4 to 10



Biscuit mining

Katy Andrews, Lana Munro & Angus Apted, Sacred Heart College

Put your miner's hat on and use your wide range of knowledge, skills and techniques to mine ore/minerals from biscuits. Attendees will be given a range of biscuits (fruit pillow, chocolate chip and timtam) and tools (toothpicks, probe, water, paint brushes, etc) and will have to decide the most effective way to extract the ore. You can then extract the ore and sell it. As an extension challenge can you rehabilitate your biscuit so it is as good as it was before?

Suitable for Year 6 to 9



Use of Stop Motion Apps in the Science Classroom

Dr Diana Nahodil and Students, Sacred Heart College

In this expo, you will learn how to use a Stop Motion App on your mobile phones to create a movie using MolyMods and other materials around the lab to demonstrate the difference between elements, compounds, mixtures, and pure substances.

Suitable for Year 6 to 10



Drones and Hydro Tasmania

Oliver Giudici, Hydro Tasmania

Drones are used increasingly by Hydro Tasmania to inspect structures that are difficult to access, monitor and map changes in the condition of structures or terrain and provide new aerial perspectives of our impressive infrastructure. ROVs (remotely operated vehicles) are being used more and more as a cheap and safe way to perform a preliminary underwater inspection of submerged structure such as a dam face or power tunnel intake screens. Drones and ROVs are safer and cheaper than sending people up high or underwater but they can't do everything ...yet.

Suitable for Year 4 to 10

DIGIDESIGN MINI-WORKSHOPS - Student and / or Teacher

STEM EXPO cont'd: hands-on activity area - Student and / or Teacher (5 - 15min activities)



Engineers Make Things Happen

Engineers Australia TAS

Engineers are scientists, inventors, designers, builders and great thinkers. They tend to be naturally curious and critical thinkers which leads them to build a myriad of skill sets throughout their study and careers. Their interests are extremely varied but typically include creativity, social, cultural and economic awareness, biology, chemistry, physics and other areas of science as well as teamwork. Join us to hear how engineers improve the state of the world, amplify human capability and make people's lives safer and easier.

Suitable for Year 4 to 10



Data Delivering Drones

Drs Rachael Hurd, Emma Pharo Geography, Planning and Spatial Sciences University of Tasmania

Drones have become a highly useful tool for long term and sustainable town planning as well as other geographical uses. In this Expo session you will learn about how drones are used to gather data that are useful to planners, farmers and government. Questions you could explore include; what might happen at a location when the sea levels rise? How would you map out a flight for the drone to survey flood damage? Participants will even learn how to operate a mini-drone to explore one of our maps.

Suitable for Year 6 to 10



Real Chemistry

Nigel Brookes, Guilford Young College

Chemistry is involved in everything we do, from growing and cooking food, to cleaning our homes and our bodies, to making materials we use every day. Chemistry is one of the physical sciences that help us describe and explain our world. In this expo session we look at the fundamentals of all chemical reactions and devise some neat experiments that showcase real chemistry.

Suitable for Year 4 to 9



Grand Prix

Bronwyn Lang, Bronwen Courtney and students, One Day School

One Day School students and staff will deliver a hands-on VR (and maybe even AR) learning experience using Google Cardboard 3D Glasses. The experience will include contemporary footage, recorded using a 360 degree camera, of the circuit followed in the 1965 Australian Grand Prix race which was held in Longford Tasmania.

In addition, a Google Earth Voyager presentation will be used to showcase an interactive guided tour with images, information and other layers in order to help educate people about this historical event.

Suitable for Year 4 to 7



Kitten Maths Madness

Ten Lives Cat Centre

Cats that have not been desexed are extraordinary at reproducing. If left unchecked then the population growth of cats can have an enormous impact on the local Tasmanian wildlife. Come and play the Kitten Maths Madness game to learn how effective cats are at reproducing, discuss preventative action and why desexing cats is so important. A real life Maths and Science experience!

Suitable for Year 4 to 6



Evolution Uno

Dipon Sakar and Lucile Leveque, Young Tassie Scientists (University of Tasmania)

The adaptation of animals and plants to their environment is mostly for the purpose of the continued survival of the species. Animals and plants can adapt in various ways – physiologically, structurally, or behaviorally. In this STEM Expo activity attendees will test out their observation skills – Identifying similar adaptations between different living organisms through a simple card game. Are you evolved enough to win?

Suitable for Year 4 to 10



The Science of Pharmacy

Mackenzie Williams, Angus Thompson and Vanni Caruso, UTAS College of Health and Medicine – Pharmacy

Pharmacists do much more than dispense medicines. Pharmacy services in both the community and hospitals are expanding to help patients get the best out of their medication and improve their health more generally. The UTAS Pharmacy team invite you to participate in 3 different expo activities;

1. Pharmacy and your health: you will learn the importance of detecting health problems early, before they cause major harm. Find out what practical advice pharmacists can offer on how to improve general health and wellbeing.
2. Fancy pharmaceuticals: one of the most interesting and enjoyable activities remains the traditional practice of 'compounding' or making medicines. In this activity you will make a simple moisturising cream and take home your own sample.
3. Community pharmacy simulation: Pretend to be a pharmacist. Learn the role and responsibilities of a community pharmacist by helping virtual patients address their health concerns.

Suitable for Year 7 to 10

Flow of the day...

*Listed program is subject to change

- 8.00am Sign-in, coffee and networking
- 8.40am Master of Ceremonies - Welcome, set up for the day and housekeeping
- 9.00am **KEYNOTE SPEAKER - DR STAS SHABALA**
- 9.40am **ROTATION ONE - 40 min parallel sessions**
>> Teacher Mini-Master Classes
>> Student and/or Teacher DigiDesign Mini-Workshops and STEM Expo
- 10.25am **MORNING TEA**
An opportunity to network with other teachers and students, and explore trade displays
- 10.55am **PROBLEM SOLVERS DESIGN CHALLENGE**
>> 80 min session - parallel sessions for Year 4 to 10 students and teachers
- 12.20pm **LUNCH** - An opportunity to network with other teachers and students, and explore trade displays
- 1.10pm **KEYNOTE SPEAKER - DR JENNIFER LAVERS**
- 1.50pm **ROTATION TWO - 40 min parallel sessions**
>> Teacher Mini-Master Classes
>> Student and/or Teacher DigiDesign Mini-Workshops and STEM Expo
- 2.35pm **WHERE TO FROM HERE?**
>> Student session - meet experts, feedback forms and Prize draw
>> Teacher session - connect with experts, feedback forms, invitation to be on steering committee
- 3.05pm **CLOSE OF THE CONFERENCE**



Future Seafood

Jennifer Hemer, NRM South

Ocean waters are warming, altering the survival of some species (both positively and negatively) and bringing new biosecurity challenges. How can we manage marine natural resources in a way which supports our communities, economy and environment? Is technology the answer? In this Problem Solver attendees will be presented with challenges directly from the seafood industry and marine scientists, along with a statement about the triple bottom line (planet, people and profits) impacts of those challenges. Can you come up with an innovative solution?

Suitable for Year 7 to 10 student and / or teacher



The Trouble with Transfer (and Tribbles)

Jessica Walker, Hydro Tasmania

Moving water from point A to point B is not always easy. In this problem solver session you will be presented with a 3D model of a landscape. Given the topography and any information provided, will you build a tunnel? Perhaps a canal? Are there other things to consider when moving water such as threatened or sensitive species (tribbles)? Attendees will work in small groups to come up with a solution and be given time at the end to pitch your idea.

Suitable for Year 6 to 10 student and / or teacher



Cool the School: co-creating actions on climate change

Professor Gretta Pecl, Drs Chloe Lucas & Gabi Mocatta, University of Tasmania

Kids and adults show a strong interest in climate change but often don't know what to DO about it. In this problem solvers session you will hear in person from some of Australia's leading climate change scientists and climate change communicators. You'll hear them summarise what the climate change problem is and you'll have the opportunity to think about positive actions against climate change. You then become the citizen scientists and examine the ways your school contributes greenhouse gasses to the Earth's atmosphere. After working out ways you can measure, record, track, reduce and offset your school's carbon footprint, you'll identify actions your school can take to decrease its carbon dioxide emissions and make real-world impact to mitigate climate change.

Suitable for Year 6 to 10 student and / or teacher



The Game Changer

Rose Bray, Ten Lives Cat Centre

Cat predation and diseases are devastating Tasmanian wildlife and much of the challenge lies with the lack of knowledge about cat ownership responsibilities. In this problem solver you will use science and design thinking to develop concepts for communication tools to effectively teach people about the impact of cats on wildlife and the importance of responsible cat ownership in an interactive, fun and engaging way!

Suitable for Year 5 to 9 student and / or teacher



Submerged Structures and Submarines

Australian Maritime College, University of Tasmania

There are thousands of jobs around the globe which require knowledge in mathematics. Through mathematics, we learn how to problem solve and this is of great importance in many industries, including engineering. In this problem solver session attendees will be given a problem to work through whilst the presenter talks through the applications and the principals involved in the design phase of offshore structures/submarines. You will get the chance to access AMC display models and small remote controlled underwater vehicles to inspire you as you design and build your mini scale structures/submarines.

Suitable for Year 7 to 10 student and / or teacher



My House Rules

Catherine Midson & Lauren McCallum (Holy Rosary Catholic School) + Christopher Bracken & Joseph Pearson (Catholic Education Tasmania)

Technology can make a huge difference to the way we live in our homes. It can reduce wasted energy (e.g. turning lights off), monitor your fitness, monitor your pet's behaviour, ensure your plants get enough water and sunlight, and much more. In this problem solver session attendees will brainstorm problems that need to be solved in their homes and learn how design thinking and Micro:bits could be part of the solution to everyday problems faced in households all over the world! Teachers will leave this session with new ideas about how they can integrate technology and design thinking authentically into their classes.

Suitable for Year 4 to 8 student and / or teacher



Transmission Tower Challenge

TasNetworks STEAM Program

A big part of a TasNetworks Engineer's job is solving problems. One of their key tools is the design thinking process which they use to understand the complexity, the constraints, and the science and engineering concepts that can be used to come up with a solution within budget, time and design criteria.

In this challenge teams will be faced with using some simple everyday items (including marshmallows and spaghetti) to build a transmission tower that meets a range of competing design constraints including height and ability to withstand certain forces. Can you figure it out?

Suitable for Year 4 to 10 student and / or teacher



This Place Makes Us All Better: Designing Spaces for Well-Being

Dave Wierenga, Mel Sluyters and students, Mount Carmel College

Wellbeing is important. The way you feel, both physically and mentally, is the essence of living. Our perception and our ability to observe our thoughts and feelings is what makes us human.

In this problem solver session attendees will design an outdoor physical space within a learning environment (such as a school) that enhances or encourages well-being (whether defined as growth, health, learning, rest, play, meditation, connection, or a combination of these elements). The session will follow the Design Thinking framework (Empathise, Define, Ideate, Pitch-Planning, Pitch) with a focus on Empathy and the essential role it plays in effective design and the promotion of communal well-being. The Ideating phase will involve the construction of scale models of your designed space. Students will act as mentors and role models for each design team. Designs will be presented in a Pitch to interested observers and industry representatives.

Suitable for Year 5 to 8 student and / or teacher

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FREQUENTLY ASKED QUESTIONS

I'm a Primary School teacher - is this suitable for me? Yes, the conference is suitable for students from Grade 4 through to Year 10 and teachers from both primary and secondary schools. We have mini-masterclasses for teachers as well as hands-on mini-workshops in which students and teachers collaborate at primary and secondary levels.

Our school has only a very small budget for STEAM - are the workshops going to help us? Yes, some of the workshops are purely paper based that develop thinking skills whilst others incorporate the use of free software available to schools. Our goal is for teachers and students to experience how simply they can begin authentic STEAM and entrepreneurial programs in their school.

We don't have a STEM/STEAM program at our school, can we still attend? We are quite advanced in the implementation of STEAM in our school, is this suitable for us? Absolutely! We have deliberately sought out activities that are applicable for the many stages that schools may be around enacting STEM/STEAM and Entrepreneurship. Whether you are just at the start or an expert we have a range of teachers and providers who will be presenting ideas and activities that will address your point of need. Our goal is have teachers connect and network with other teachers and take away lots of ideas to implement at your school.

Do we have to submit/propose a workshop to run at the conference? No. However, if you have something you think other students and teachers would like then we would love you to submit a proposal.

We are looking for new and innovative ways to develop our students, will we be able to ask questions and find out what other schools are doing? Yes – this was one of founding intentions for this conference. We want students and teachers to experience a variety of hands-on workshops so they can go back to their schools and infuse new ideas into their programs.

Why are you recommending students to attend and how many can I bring? We have found that the best exemplars of school based STEAM and Entrepreneurship programs in Australia are driven by both students and teachers. We want to spark student leadership in your schools. This is why we are suggesting to schools to bring anywhere up to 15 students to the conference. We have enough going on for over 250 people!

What does my registration include? Every student registration for the Conference includes attending keynotes and access to all activities /events / workshops and materials. Attending PD Teachers will receive a Professional Development Certificate of Professional Learning, access to all activities /events, keynotes, any master class sessions, workshops, presentation materials and notes, access to presenters and professional conversations. Price morning tea (half and full day conference) and lunch (full day conference only)

I have a question about the conference For general enquiries, please contact Rachel@spark-educonferences.com.au or call us on +61 0411270277

Is my registration transferable? Yes, your registration can be transferred to a colleague or student we ask that you provide all transfer details to us by contacting Rachel@spark-educonferences.com.au

What is the refund policy? 75% refund is available from 11 to 30 days prior to the event, after this date or for non-attendance refunds are not available and payment must be made in full. However, we will be pleased for you to transfer your registration to another attendee (see above). Sponsored and supported schools may differ. Please contact office@spark-educonferences.com.au to process this transfer.

Cancellation of an event by us In the event of insufficient applications, the programs will not proceed and registration monies will be fully refunded. In the event of the program being cancelled, registration monies only will be refunded as we will not accept liability for the payment of any other associated costs.

Payment of registration By submitting this form you are confirming that you have been given financial approval by the school/organisation to attend. All registration payments must be made prior to commencement.*Early Bird rate must be paid by the invoice due date otherwise we reserve the right to re-invoice at the standard rate. **Presenter fee (teacher/sponsor/guest) - students must still pay even if presenting.

Student attendees: You agree as your school representative teacher to take full responsibility of the students attending with you. We aim to ensure all presenters/facilitators have their WWCC and the event meets Occupational Health and Safety requirements.

Privacy Policy We promise to keep your information private at all times. We will not sell, pass on or by any other method share your information with a third party. We will store your information for the purpose of communication regarding the event and for methods required by you to use tools associated with this event. You will be added to our newsletter list for future events and correspondence, you are welcome to unsubscribe at any time.

NOTE: We will send emails prior to the workshop requiring you to take actions. This may include completing a short questionnaire to understand your current ability and needs, reading materials, accessing tools, setting up technical requirements, dietary requirements, and a reminder. Whilst we aim to keep these to a minimum your responses greatly assist in making the day more relevant to you.

Seeking Sponsors! The conference brings together students and teachers to create an inspiring future where a community happens. We want all schools to have access to events like this and your support can make that happen. Sponsors have the opportunity to deliver hands-on workshops, contribute to the conversations, help us keep our admission costs as low as possible and offer scholarships. We invite you to consider joining us as a sponsor. Please contact us at office@spark-educonferences.com.au

Accessibility We are committed to making our events as inclusive as possible. If you have additional accessibility requests, please contact us at office@spark-educonferences.com.au

Media on Premises As part of our ongoing commitment to empower students and teachers, we may photograph, video and audio record our events to share important discussions and experiences via our presentation content, so we can scale our reach to people who are unable to attend our events in person. By entering our event location during our event, you agree that Spark Education Conferences has the right to use your likeness, image, voice, etc. in photos, videos and in any educational, marketing, advertising or related endeavours relevant to the work. You will not be compensated in any way for the use of your likeness, image or voice, etc. Being on the premises during our event means that you release and hold harmless Spark Education Conferences from any claims or actions that arise as a result of this production. You may opt out at any time by letting us know.

Thank you so much for your support and cooperation. We look forward to partnering you to create an inspiring conference.