

It Takes a Spark!

STEM Conference

VIC | TAS | WA | QLD

Industry / University / Organisational Outline

We invite you to get in touch with us...

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The It Takes a Spark STEM Conferences were created by Dr Adrian Bertolini and Rachel Manneke-Jones from Intuyu Consulting, an Education Professional Learning provider. As people who have backgrounds in engineering, science, community outreach and having worked to address social justice issues in society, they are passionate about developing young people to make a difference to their future.

The intent of the 'It Takes a Spark STEM' conferences are to inspire students and teachers to experience what is possible in Science, Technology, Engineering and Maths and to support them to collaboratively develop authentic STEM learning and pathways in their schools. Industry, TAFEs, universities, and STEM-based organisations have a big part to play in showcasing the potential of STEM and linking learning to real-world practice.

The conferences have four opportunities for industry, TAFEs, universities, and STEM-based organisations to be involved in authentic and practical ways:

>> Present a Digidesign Session

These are 40 min hands-on workshops for students (Year 4 to 10) and their teachers. Often the mix is 90% students and 10% teachers and the idea is to have the attendees actively participating in a hands-on STEM experience. We believe that when attendees experience real-world STEM they develop a deeper understanding of what it is and how interesting it can be.

The activities can almost be on any topic as long as it draws out the knowledge, or skills or thinking that STEM develops. In the past we have had organisations run short mini-drone challenges, design sprints on problems they have faced, paper prototyping, virtual reality use in your industry, marine science, environmental challenges, an engineering or science principle, mathematical activity, and so on.

There are two rotations of Digidesign sessions across the day: one in the morning (around 9.40am) and one in afternoon (around 1.40pm). You can also target sessions towards primary aged students (year 4 to 6), secondary (7 to 10) or a mixture of both. Typically there are 20-25 attendees in a session.



>> STEM Expo

The Expo is set up within a large room, hall or gym and runs at the same time that the Digidesign sessions are happening. Attendees will choose the Expo so they can experience a wide range of hands-on activities that are shorter in length (5-15min). The attendees will move around the room over the 40 mins sampling the different activities, talking to the people at the activities, and learning about the breadth of practical STEM.

Organisations can use the Expo as an opportunity to connect with students and teachers, showcase what they do, how it relates to STEM, and the pathway they could take to become involved in that area. We have had different organisations put together displays around ultrasonic inspections, construction engineering, VR site tours, pharmacy in action, biscuit mining, use of drones in real-world industry, and so on. We have found that the best Expo activities are hands-on and entice students and teachers to interact and talk with the people at the display. The expo is also a good opportunity for engineers, scientists, mathematicians, etc from the organisation to talk to students about their journey and what they do.

The expo area is also available to all the conference attendees during morning tea and lunch time.



>> Lead a Problem Solver Session

These are 80min hands-on design challenges which take the attendees on a journey to solve a real-world problem. They are scheduled between morning tea and lunch time and aim to deepen student and teacher understanding of how real-world problems and challenges are thought through.

We have had organisations run design challenges on topics as diverse as the energy transition in industry, protecting sensitive species from the impact of construction, or science, or engineering design whether it is structural engineering, protecting eggs from impacts, creating mini-scale underwater structures, dealing with batteries at a recycle facility, game design, choose the best route for a subsea pipeline, building catapults, coding a drone route to meet a goal, and much more.

Design and scientific thinking are often not well delivered in schools and these challenges are an opportunity for students AND teachers to experience the process. Organisations that run STEM outreach programs like this session because it provides an opportunity to showcase what their programs look like in schools.



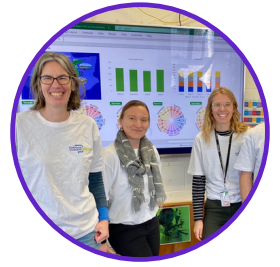
>> Present a Teacher Mini-Master Class (sponsors)

Teacher Mini-Master Classes are 40 or 80 minute hands-on sessions which are an opportunity for sponsoring organisations to share some of their great STEM and entrepreneurial activities and ideas with teachers. The session could address teachers / schools who are at the beginning, next or extending step of their STEM journey. If you are thinking about showcasing a particular product, the session must be hands-on for participants and demonstrate its application in the classroom with links to the curriculum.

In our experience the workshops teachers tend to want are those that show them how to practically deliver particular STEM-oriented or entrepreneurship initiatives in their school. Past successful workshops include topics such as: Upgrading your programming sessions with drones, Encouraging inquiry with the Internet of Things, Using your PASCO (and other data logging) gear to extend STEM in the science classroom, Running engaging Arduino projects, Leading and assessing STEAM learning, Cyber Teacher – starting up in cybersecurity and so on.

We currently accept a very limited number of teacher mini-masterclass sessions. This is because we have found that by having teachers participate in sessions where students are participating actually demonstrates the value of STEM activity better. We also realise that some workshops are better if they are solely for teachers! Given the limited number, every submitted teacher mini-masterclass session is run past the conference steering committee to assess whether there will be enough interest in that topic by the teachers. Our expectation is that you provide handouts and resources to give to attending teachers to support them after the conference. This could include interactive lesson examples.

There are two rotations of Teacher mini-masterclass sessions across the day: one in the morning (around 9.40am) and one in afternoon (around 1.40pm). Typically there are 10-25 teachers in a session.



>> Further opportunity

We have designed a specific session where teachers will connect and network with representatives from sponsors, universities, industry, and STEM organisations. The intention is to explore and discuss the latest STEM programs and pathway possibilities that schools can connect to. The format has yet to be fully decided upon but it is likely to involve a speed dating approach or an expo format.

>> We are seeking Sponsors: financial, scholarships, in-kind...

If your organisation is interested and able we would appreciate any sponsorship – financial or in-kind. The conference deliberately caters to students and teachers from all socio-economic environments by keeping its conference fees low. We can only do this with the generosity of sponsorship from a range of organisations. If you would like to be a sponsor and it's benefits to you please email our Conference Co-Ordinator Dr Adrian Bertolini for a prospectus.

We invite you to get in touch with us...

If you have any questions, want to discuss a potential activity, or want to find out more about the sponsorship and associated promotion of your organisation contact conference coordinator **Dr Adrian Bertolini** at adrian@spark-educonferences.com.au or on +61 (0) 413 036 382

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