

It Takes a Spark!

STEM Conference

VIC | TAS | WA | QLD

Workshop Outline for Schools

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

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The It Takes a Spark Conferences were created by Dr Adrian Bertolini and Rachel Manneke-Jones from Intuyu Consulting. 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.

Schools have a lot to share with one another and we encourage presentations from schools across all educational sectors. When students and teachers see hands-on STEM activities and learning from other students and teachers it ignites a deeper connection to what is possible for themselves and their school. Students who present become aware that they are capable of answering questions, sharing their understanding and being STEM experts. Teachers love seeing hands-on activities and approaches that has worked in other schools because it showcases what they could do in their own school.

The conferences have four opportunities for students and teachers to present:

>> Presenting a Digidesign Session

These are 40 min hands-on workshops for students (Year 4 - 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 schools run Rube Goldberg design challenges, virtual escape rooms, hands-on cryptography, mystery box challenges, environmental challenges, biomimicry investigation, an engineering or science principle, art or 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 to 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.

Schools can use the Expo as an opportunity to have their students showcase some of the short hands-on STEM activities and projects they run at their school. We have had schools put together displays around problem-based STEM learning projects, the hidden language of emoji using micro:bits, SUBS in schools, augmented reality, First Lego League, melting metal momentos, using of chromatography in forensics, household engineering, egg drop challenges, 3D fashion, electrical circuits with playdough, and much more. The expo is also a great opportunity for teachers to talk to other schools as well as industry, universities, and organisations to explore new STEM pathways for your school.

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 schools run design challenges on topics as diverse as the United Nation sustainability goals, determining the eccentricity of the Earth's orbit, half and half bridge design, egg drop challenges, paper structural engineering, picture book engineering, catapult carnage, Minecraft STEAM challenge, using Lego to prototype & test a real bridge, 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. The aim is that attending teachers and students can experience how they could go about being involved in real-world design challenges in their own schools.



>> Present a Teacher Mini-Master Class

Teacher Mini-Master classes are 40 and 80 minute hands-on sessions which are an opportunity for teachers (and students) to share some of their great STEM and entrepreneurial activities and ideas with other 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: Leading and assessing STEAM learning, Setting up a coding and robotics program in your primary school, Connecting the dots – making learning real in Middle Years through STEM, Cyber Teacher – starting up in cybersecurity, STEAMPunk Adventures – Take your students on a tailored journey around the world, Setting up effective STEM learning in your school, 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.

